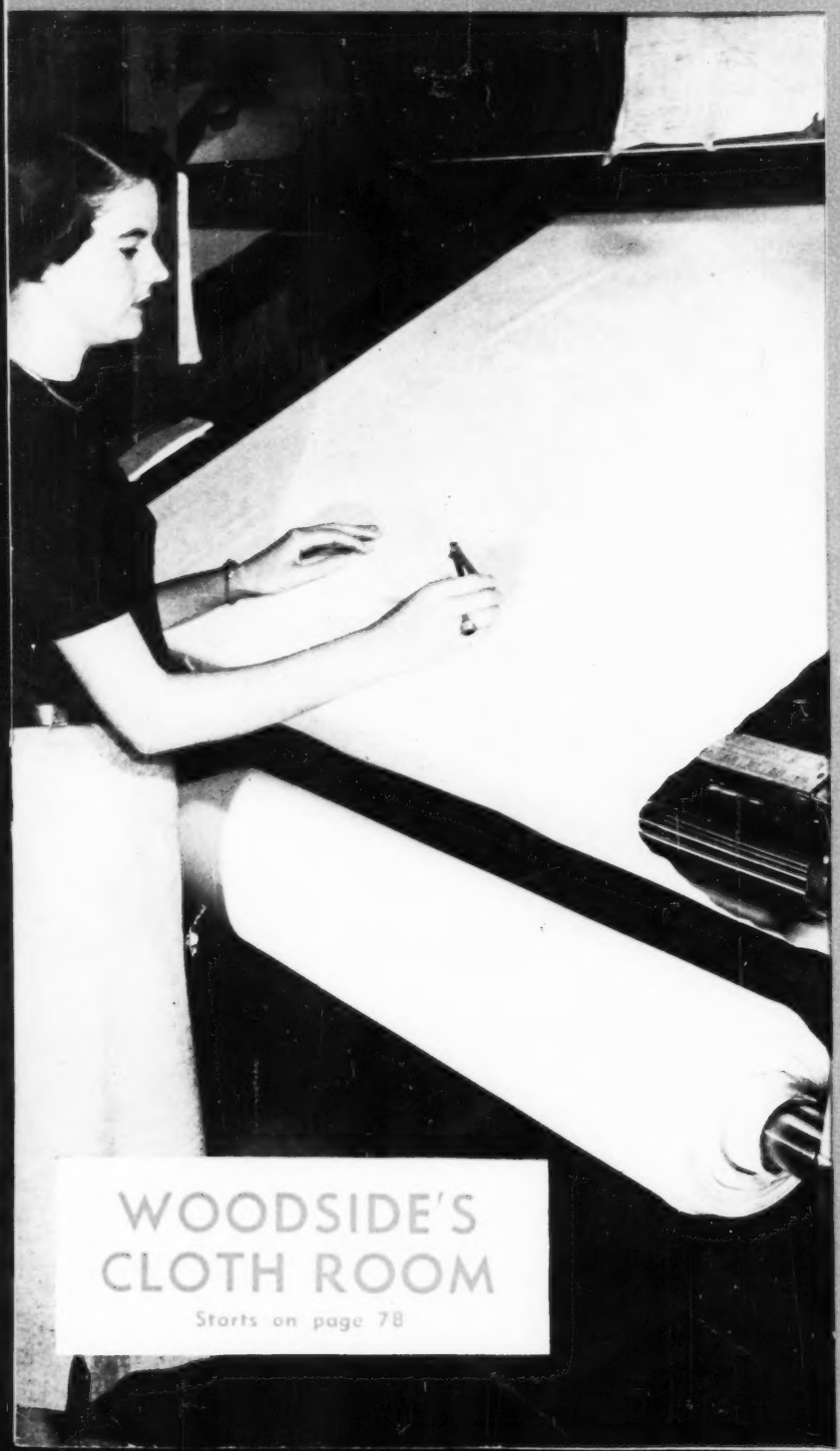
TEXTILE WORLD

A McGraw-Hill Publication ---------- **JANUARY • 1954**



WOODSIDE'S CLOTH ROOM

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TEXTILE WORLD, Vol. 104, No. 1, January, 1954. Published monthly with an additional issue in November McGraw-Hill Publishing Co., Inc., (Bragdon Lord & Nagle Division). Publication Offices, 99-129 North Broadway, Albany, N. Y. Editorial and Executive Office, 330 W. 42nd Street, New York 36, N. Y.

Subscriptions: Address correspondence to TEXTILE WORLD—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 West 42nd Street, New York 36, N. Y. Allow ten days for change of address.

Subscriptions are solicited only from executives, engineers and technicians in textile manufacturing or finishing plants. Position and company connection must be indicated on subscription orders.

Subscription: United States and possessions, $3.00 a year, $4.00 for two years, $5.00 for three years. Canada, $4.00 for one year, $6.00 for two years, $8.00 for three years. Other Western Hemisphere, $10.00 for one year, $16.00 for two years, $20.00 for three years. All other countries $15.00 for one year, $25.00 for two years, $30.00 for three years. Entered as second class matter August 29, 1936, at Post Office, Albany, N. Y., under the act of March 3, 1879. Printed in USA. Fifty cents per copy.

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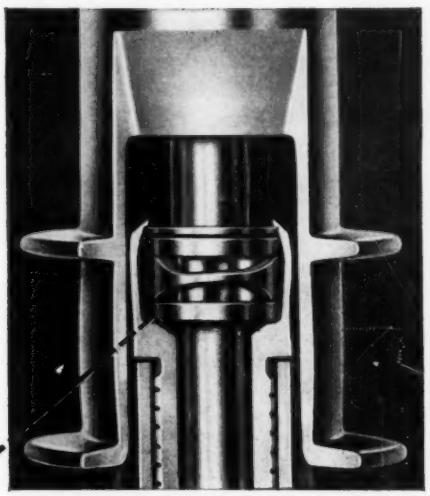

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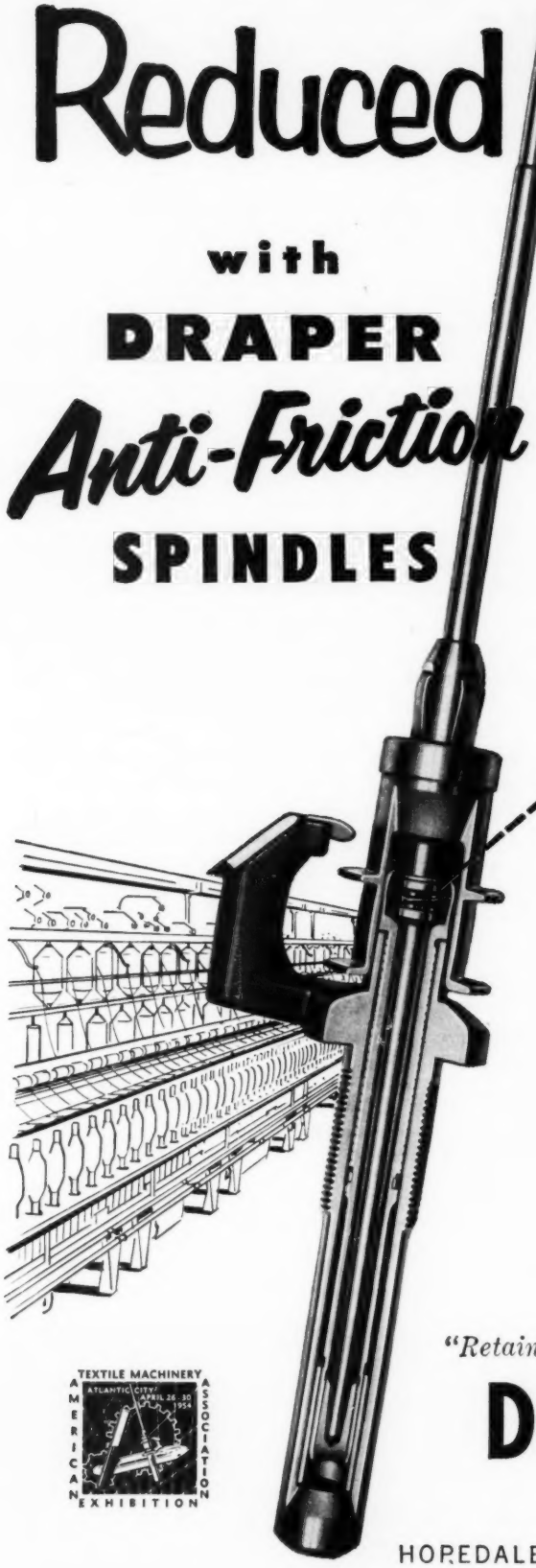

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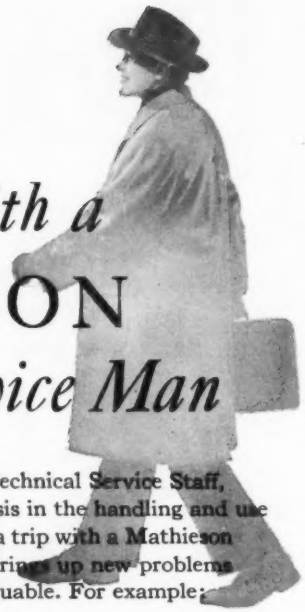

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THE Long-Range VIEW

The Supervisor's Most Important Qualities

On this page in September, October, and November, we ran a series of editorials on attitudes of textile workers toward their jobs, supervisors, and managements. It was pointed out that there is some indication that on these scores the textile industry does not rate as well as U. S. industry in general.

In studying these results and discussing them with a number of mill men and human-relations specialists, we have reached the conclusion that a large part of the problem lies in the fact that the textile industry employs a large percentage of women and mills are set up and run by men. Jobs are laid out, supervision carried out, decisions made, problems solved, rewards and reprimands given, etc. by men on principles understood and appreciated by men. The trouble is that many of the people affected are women, who basically look at these endeavors from a viewpoint different from that of men.

But to complicate matters, most mills also employ a large percentage of men. So mill men are faced with the difficult situation of having to deal with a work force composed, in many cases, of men and women in something near equal numbers. And most problems involve both men and women, and nearly every solution has to be a compromise of men's and women's basic points of view.

In the day-by-day supervision of workers, probably the greatest mistake made by the largest number of mill men is to give prime consideration to fairness. Over and over we have heard management exhort supervisors to "be fair" and "treat everybody alike." Certainly that is an absolute necessity. It is as fundamental as "Be honest." But it should be part of the supervisor's character, a way of looking at things that he brings to the job from his childhood. It should not be necessary to learn it as one of the supervisor skills he acquires in handling workers. And the supervisor who bases his relations with workers on the principle that fairness is enough is destined to be a poor supervisor.

On page 92 of the October issue, we published a list of supervisor qualities workers appreciate most. It is significant that only three (3.4%) of 88 women put importance on fairness. The qualities they rated highest were "Considerate" (24%) and "Patient and understanding" (21.6%). Combined, these qualities scored 45.6%. All other supervisor qualities combined, including fairness, scored only 13.6%.

In the same test, 135 men also evaluated supervisor qualities. (Unfortunately, these men were supervisors instead of workers, but at least their listing indicates the men's point of view.) The quality rated highest by the men was "Understanding" (28.1%); the second was "Fair" (17%); and the third was "Considerate" (12.6%). Combined, "Understanding" and "Considerate" rated 40.7%, almost as high as the women workers' rating of these qualities.

So important do these qualities seem to be, particularly for textile-mill supervisors, that we have tried to find definitions for them—not the dictionary definitions, but definitions that convey the meaning intended by workers in speaking of their bosses. These definitions are:

CONSIDERATE—Sympathy for the worker's feelings and problems.

UNDERSTANDING—Ability to know and appreciate the worker's part in a situation and show consideration for him.

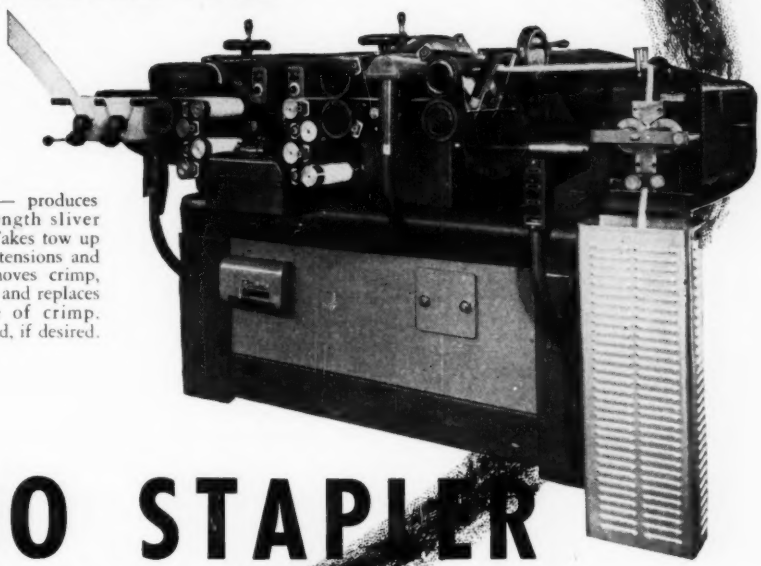
PATIENT—Ability to understand the worker, his problems, and his abilities and to sympathize with his shortcomings.

If the supervisor's responsibility ended there, his life would be an easy one. All he would have to do is go around sympathizing with people and making them happy. However, fairness to other workers, other supervisors, and to the company must temper his actions and sympathy for his own workers. His job is not merely to satisfy workers; the whole point in maintaining good worker relations is to run a more-efficient, more-profitable job.

Every supervisor is interested in improving his skill as a supervisor and his relations with his workers; but, unfortunately, dependable help and direction in this highly important field is not nearly so readily available as help in technical knowledge. In any educational program, whether it is formal instruction or self-help, the supervisor would do well to remember that progress will come fastest if he develops the qualities of consideration, sympathetic understanding, and patience.

D. M. Thomas

"We bought a third one"



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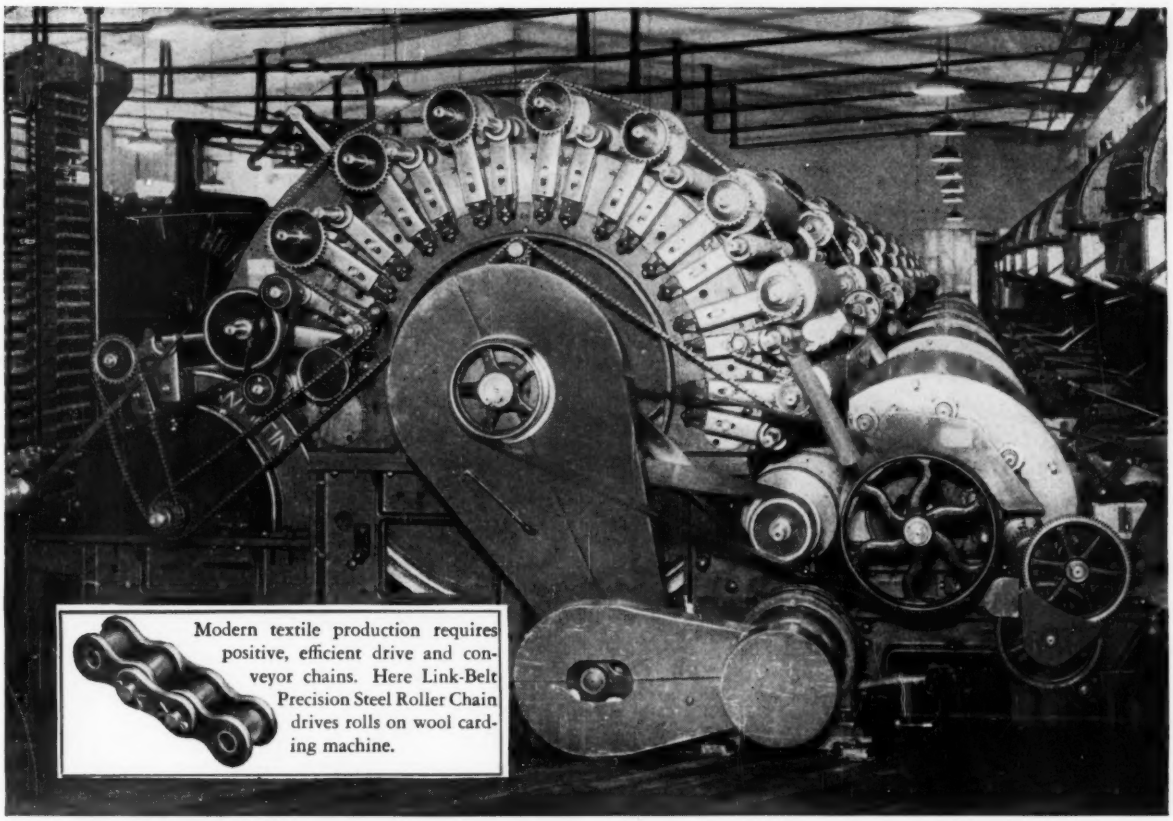

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GASTONIA, NORTH CAROLINA

September 18,1953

Mr. W.F.Lowell, Vice-Pres.
Saco-Lowell Shops
60 Batterymarch Street
Boston 10, Mass.

Dear Mr. Lowell:

Just thought we would write and let you know that we are very well satisfied with the results obtained from our new SG-1 Spinning frames.

These frames have enabled us to make a more even yarn,also a yarn with a high break factor. We are showing substantital savings on spinning due to the better running qualities and large packages, and have also realized considerable savings in our winding cost per pound.

Yours very truly,

A.M. SMYRE MANUFACTURING COMPANY

D.H. Cauble

D.H. Cauble, Superintendent

THESE ARE THE FACTS

	The New SG-1	The Old Regular
Count of the Yarn	20/1	20/1
Length of Yarn Traverse	10.62"	5.88"
Ring Size	3.0"	2.0"
Weight of Yarn on Bobbin	12 oz.	3.2 oz.
Yards of Yarn on Bobbin	12,600	3,360
Unwinding Time at 500 yds./M	25.2 Min.	6.72 Min.
Bobbins creeled per Spindle per Hr. at Winder	2.39	8.93
Spindle Speed	7,920	7,920
Traveler Speed	6,220 Ft./M	4,146 Ft./M
Speed of 1" Front Roll	170 R.P.M.	170 R.P.M.
100% Production per Spindle per Hr.	.053 Lbs.	.053 Lbs.
Turns per Inch of Twist	14.9	14.9
Doffing Cycle	14.73 Hrs.	4.14 Hrs.
Estimated Efficiency	96.1	91.2
Net Production per Spindle Per Hr.	.0509 Lbs.	.0483 Lbs.
Increase for SG-1	5.4%	

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AND A LOFTINESS
THAT RESULTS IN A
"REAL QUALITY" YARN.

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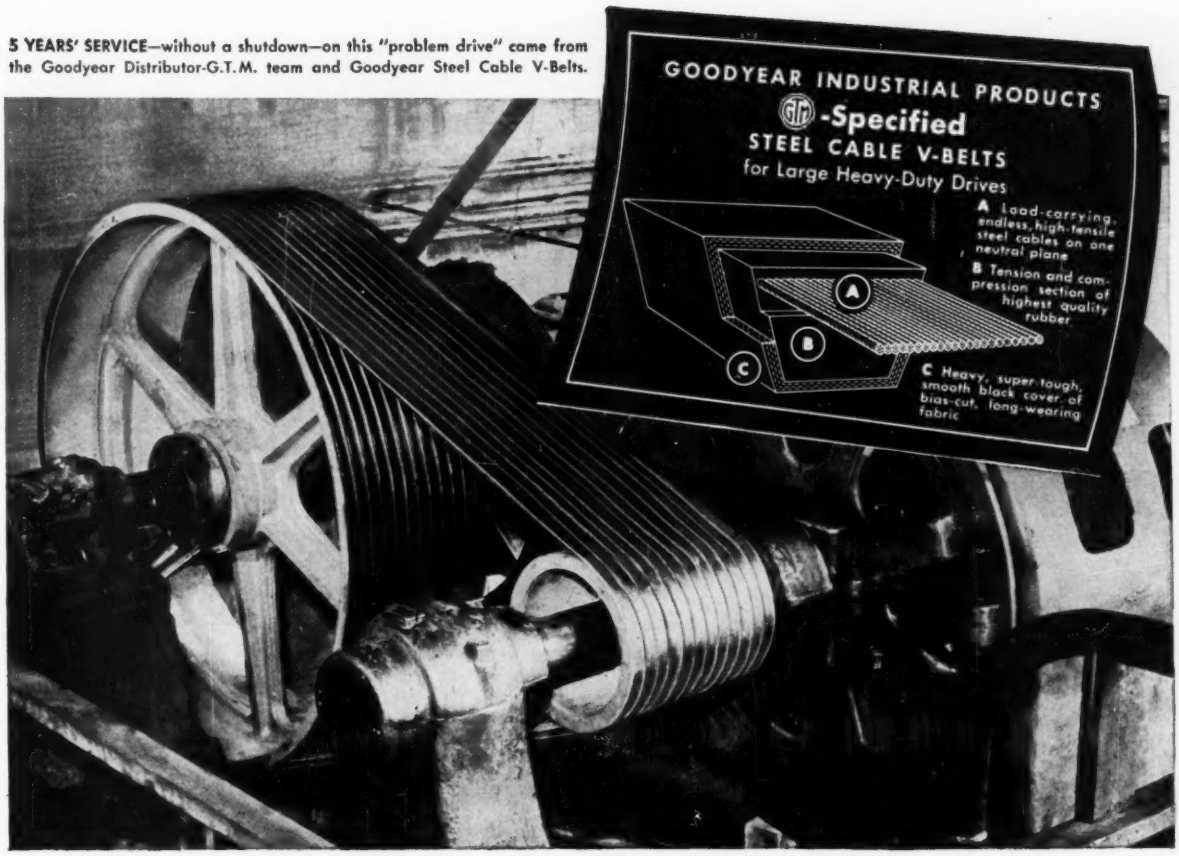
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G.T.M.-Specified
STEEL CABLE V-BELTS
for Large Heavy-Duty Drives
A Load-carrying, endless, high-tensile steel cables on one neutral plane
B Tension and compression section of highest quality rubber
C Heavy, super-tough, smooth black cover of bias-cut, long-wearing fabric
A
B
C

Best V-Belts in the Long Run...

COME FROM YOUR GOODYEAR DISTRIBUTOR

GETTING the maximum service out of V-belts depends on two things: a quality-built product and its proper recommendation. You can get both from your Goodyear Distributor.

The product could be any one of the complete line of V-belts by Goodyear. There are nine basic constructions—all designed to R.M.A. Standard dimensions—all built to the world's highest standards of quality and workmanship. Each of these belts is precision-made to do a specific job best—each is an expert combination of rubber, reinforcement and fabric to give you maximum return for your dollar.

Choosing the right belt for your drive comes natural to your Goodyear Distributor. He is selected because of his experience in the industrial supply field. He is especially trained in drive design and maintenance by Goodyear. He knows belts and how to use them. And should he ever be stopped by a real problem drive, he can always call on the G.T.M.—Goodyear Technical Man—the man who knows V-belts best.

There are many advantages to dealing with your Goodyear Distributor. Tailored service, rapid delivery, simplified billing and reduced inventory are a few. But most important, only he has the right product, the right knowledge and the G.T.M. Look for him in the Yellow Pages of your Telephone Directory or write Goodyear, Industrial Products Division, Akron 16, Ohio.

GOODYEAR

THE GREATEST NAME IN RUBBER

We think you'll like "THE GREATEST STORY EVER TOLD"—every Sunday—ABC Radio Network—THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

For more information, write direct or use Reader Service post card.

A strong, steady blast of air is constantly circulated through the wide, smooth air passages in Century Textile Motors. Cooling air circulates over bearings and around the windings maintaining temperature within nameplate rating. You can actually watch lint and textile dust passing freely through the frame.

For all your motor needs, Century builds a complete line of electric motors in sizes from 1/8 to 400 horsepower . . . in types that include dripproof, splashproof, totally enclosed fan-cooled and explosion proof. Also, Century Selective Speed Drives are available for many coordinated mill drives.

Anywhere in your mill, bleachery or finishing plant . . . there's a Century motor designed to do the job best.

Century C MOTORS

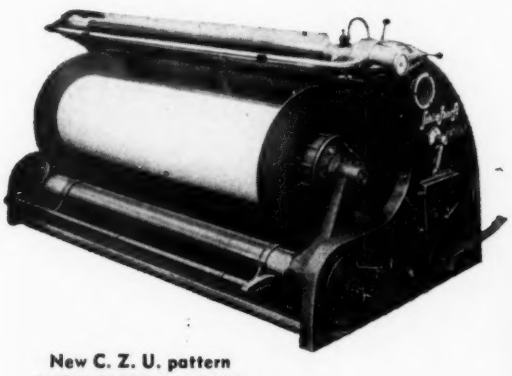
CENTURY ELECTRIC COMPANY
1806 Pine Street, St. Louis 3, Missouri
Offices and Stock Stock Points in Principal Cities

784

MODERN MACHINERY FOR WINDING AND WARPING

···· Schlafhorst ····

UNIONMATEX



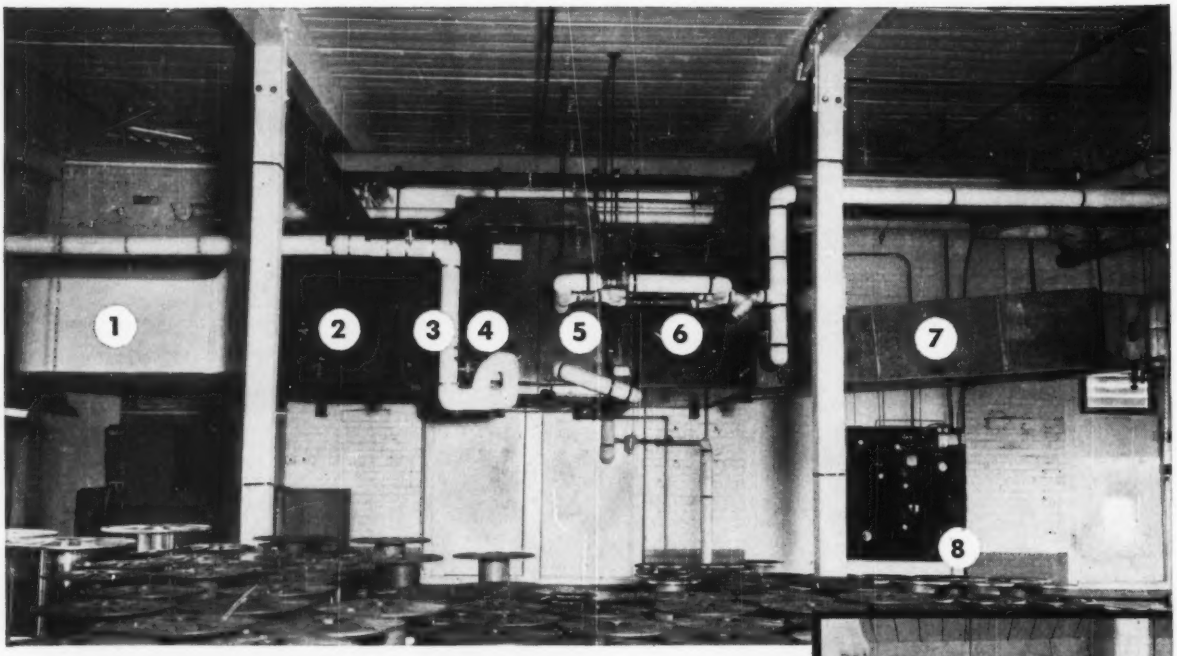
New C. Z. U. pattern
HIGH SPEED WARPER
Extraordinary production
Greatest simplicity

FULLY AUTOMATIC
WEFT WINDER (QUILLER)
AUTOCOPSER A.S.E.
for winding speeds up to
12000 revs per minute

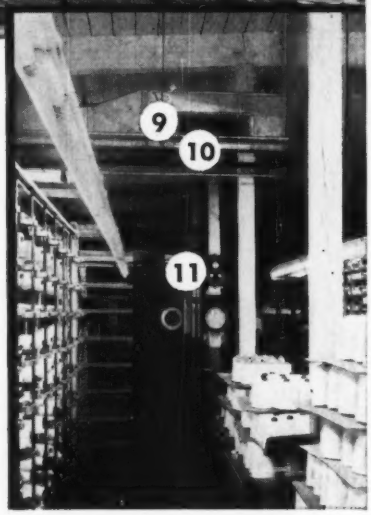
NEW GROOVED CYLINDER
CONE and CHEESE WINDER
B.K.N. PATTERN
SELF-THREADING
for winding speeds up to
1300 yards per minute

We also make CONE CREELS of various types, such as f.i. MAGAZINE CREELS and TRUCK CREELS with electric detectors of our eyeboard system.

W. SCHLAFHORST & CO · M.GLADBACH · GERMANY



Amco Unit Dry-Duct System installed at Raytric Manufacturing Company, Bristol, Conn. Shown here are (1) fresh air inlet from outdoors; (2) plenum chamber, showing recirculated air louvers underneath; (3) air filter; (4) heating coils; (5) cooling coils; (6) fan; (7) air duct; (8) control panel; (9) outlet in air duct; (10) atomizer; (11) humidity control



Floor Area Limited?

This compact AMCO Unit Dry-Duct System may be your answer

An Amco Unit Dry-Duct System is composed of a self-contained air conditioning unit, distribution ducts and room atomizers. The unit itself is compact and can be installed overhead, out of the way, where it will not take up valuable mill floor space.

Here's how it operates. Automatically operated louvers introduce into the unit fresh air and recirculated air in proper proportions. The air is filtered, if desired, and then heated as required. This "dry" air is distributed to the working area through ducts. Humidification is provided by room atomizers located in front of each air duct outlet. Spent air and heat is exhausted automatically through vent louvers.

Amco Unit Dry-Duct Systems operate with evaporative cooling *only*, or with cooling coils as in the featured installation at Raytric Manufacturing Company.

The Unit Dry-Duct System is but one of the many types of air conditioning systems which Amco manufactures, engineers and installs in textile mills. Amco is in the unique position of being able to give you the widest possible choice between humidification, evaporative cooling (central station, dry-duct, or ductless type) or refrigeration, alone or in combination. Call an Amco engineer. You can rely on him to give you advice on the system best suited to your needs.

AMCO

AIR CONDITIONING SYSTEMS since 1888

Humidification • Evaporative Cooling (Ductless, Dry-Duct or Central Station) • Refrigeration

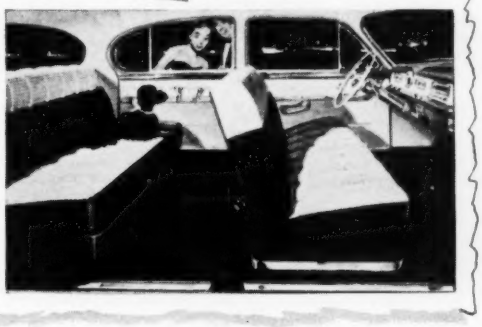
AMERICAN MOISTENING COMPANY, PROVIDENCE, R. I. • ATLANTA • BOSTON • CAMDEN • CHARLOTTE • AFFILIATED WITH GRINNELL COMPANY, INC.

When DODGE announces "Matchless Elegance"

...this means JACQUARD FABRICS woven on C&K Machines

For '54, DODGE announces "Elegance in Action." And to attain this elegance *inside* their brilliant new cars, DODGE gives the motoring public the unprecedented luxury of *Jacquard* upholstery Fabrics. Read what DODGE says about these fabrics in their current announcements in national magazines and newspapers, examples of which are shown here.

The distinctive advantage of Jacquard Fabrics is their range of "Artistry Unlimited"... in upholsteries, draperies, bedspreads, blankets, table damasks, towels, dress goods, linings, tie silks, etc. This is the *extra merchandising advantage* enjoyed by mills whose looms are equipped with modern, high-speed C&K Jacquards. These luxury fabrics are rising to new levels of popularity. So see C&K today about the right Jacquards for *your* looms.



ELEGANT JACQUARD FABRICS

loomed in the manner of the most exquisite tapestries, create a new sense of gracious living *inside* the new DODGE.

(So say the builders of these fine cars. And C&K says: "See the '54 DODGE... see what Jacquard Elegance is really like.")

CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

Division of

CROMPTON & KNOWLES LOOM WORKS

WORCESTER 1, MASSACHUSETTS, U. S. A.

PHILADELPHIA, PA. • CHARLOTTE, N. C. • ALLENTOWN, PA.

This "Invisible Trademark" Stands Back of the Trademarks of the World's Finest Fabrics . . . which are **WOVEN** Fabrics.

These two new Columbia-Southern liquid caustic soda storage depots in Chicago, Illinois, and Carteret, New Jersey, are examples of Columbia-Southern's progressive attitude on customer service.

The addition of these new storage facilities will assure continuing prompt deliveries to Columbia-Southern customers in the two market areas.

Consumers of liquid caustic soda can be serviced by tank cars from the two new areas as well as from these strategic plant sites: Barberton, Ohio; Corpus Christi, Texas; Lake Charles, Louisiana; and Natrium, West Virginia.

Deliveries to less-than-carload customers are made in tank trucks by jobbers who maintain caustic storage facilities at many points.

Specify Columbia-Southern caustic soda for a good product, fast dependable delivery, free technical assistance, courteous treatment, special care in the handling of your orders. Contact your nearest district office today.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

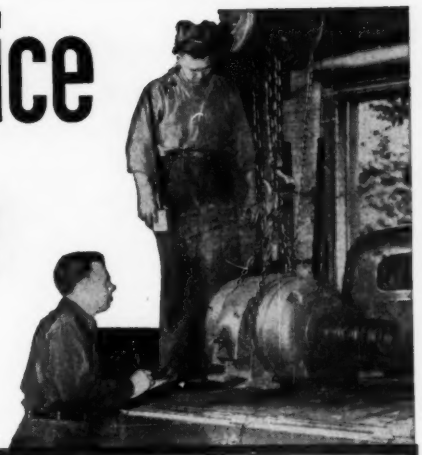
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY

ONE GATEWAY CENTER, PITTSBURGH 22, PENNSYLVANIA

DISTRICT OFFICES: CINCINNATI • CHARLOTTE • CHICAGO • CLEVELAND • BOSTON • NEW YORK • ST. LOUIS • MINNEAPOLIS • NEW ORLEANS • DALLAS • HOUSTON • PITTSBURGH • PHILADELPHIA • SAN FRANCISCO

For more information, write direct or use Reader Service post card.

Motor Repair Service Wherever You Are



"Certified" SERVICE

Factory approved motor service in every industrial area from 101 Allis-Chalmers Certified Service Shops.

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Greenville—Mowbray Eng. Co.
Montgomery—Standard Electric Co.

ARIZONA
Bisbee—Copper Electric Co. Inc.
Phoenix—Daley Electric Company

CALIFORNIA
San Diego—Calif. Elec. Works
Los Angeles—Larsen-Hogue Elec. Co.
Oakland—Pacific Elec. Motor Co.
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San Francisco—Weidenthal-Gostiner Electric Works

COLORADO
Denver—Baker Electric Company

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Hartford—Charles H. Leppert
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FLORIDA
Jacksonville—Turner Electric Works
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Marion—Giles Arm. & Elec. Wks., Inc.
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Indianapolis—Scherer Electric Co., Inc.
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Salina—Cent. Kans. Elec. Mach. Co.
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ALLIS-CHALMERS CERTIFIED SERVICE SHOPS are independent service shops which have met rigid standards for ability, experience, equipment and business integrity. They use factory approved methods and parts and do your work promptly at a fair price.

Of course, Allis-Chalmers Certified Service Shops give good service on any electrical equipment, of any make. Tear out this ad and save it, or write the name of the A-C Certified Service Shop nearest you in your address book. Allis-Chalmers, Milwaukee 1, Wisconsin. A-4197

Texrope and *Vari-Pitch* are Allis-Chalmers trademarks.

ALLIS-CHALMERS

Sold . . .
Applied . . .
Serviced . . .

by Allis-Chalmers Authorized Distributors, Certified Service Shops and Sales Offices throughout the country.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

TEXROPE — Belts in all sizes and sections, standard and *Vari-Pitch* sheaves, speed changers.

PUMPS — Integral types from ¾ in. to 72 in. discharge and up.

Don't let temperature readings drop below

85°F. ... WARNED THE HEATING SPECIFICATIONS

Heating specifications for the Coats & Clark Inc. mill at Acworth, Ga., were clear and emphatic. Because of the nature of the material being processed, the temperatures had to be maintained at 85°F. (or better). Despite a prolonged cold spell which sent outside temperatures tumbling to record lows, Textile Thermoliers, the Grinnell Unit Heater, met the specifications to the letter. Textile Thermoliers provide maximum capacity at all times . . . their special heating element stays cleaner, assuring efficient heating with minimum servicing. No wonder this mill is another *enthusiastic booster* for Grinnell Unit Heaters.

Perhaps you saw the recent page advertisement by Grinnell, appearing in this publication, which listed more than 35 textile mills using Textile Thermoliers. On the list (though by no means complete) were such names as Cannon, American Thread, Dan River, Julliard and Springs Cotton These successful operators should provide a most persuasive reason for you to check the advantages of Thermolier Unit Heaters. The box at the right gives additional excellent reasons for taking *prompt action.*

- Parallel openings between the web tubes permit air from the fan to pass through and keep heating element clean.
- Maximum capacity provided at all times and annoying and destructive water hammer eliminated because built-in pitch of tubes and internal cooling leg assures continuous drainage of the condensate.
- Safety and durability assured with leak-proof tube-to-header construction.
- Plain thermostatic trap, the simplest and least expensive kind of trap, made practical because of Thermolier's exclusive internal cooling leg.

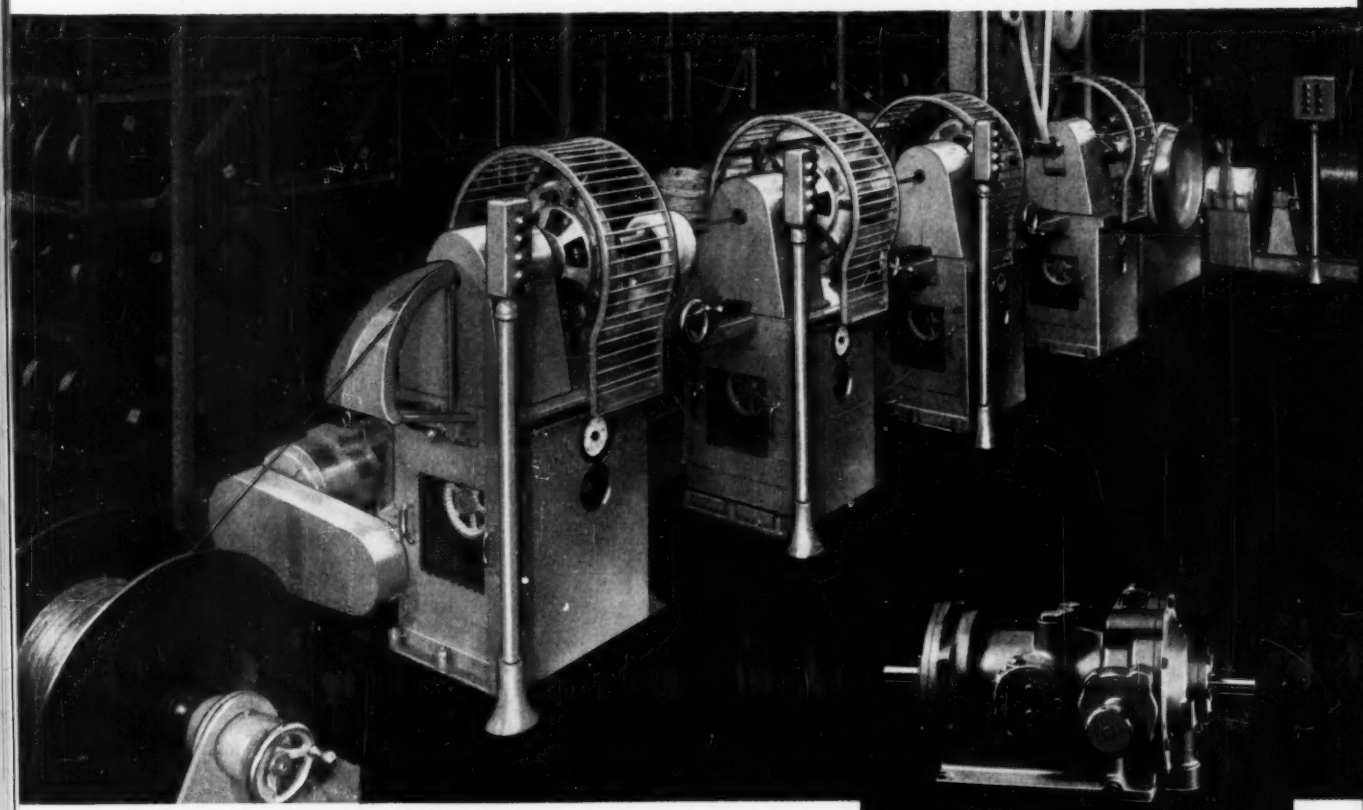
GRINNELL

TEXTILE UNIT HEATERS

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco air conditioning systems

MACHINE DESIGN AT WESTERN ELECTRIC



Its use of Oilgear Fluid Power

Western Electric Company, manufacturing unit of the Bell Telephone System, originates, designs and builds many of the special machines it uses in its own manufacturing processes. It also maintains unceasing pressure to improve upon machines already in operation, for optimum performance, for better product, for lower costs, for freedom from trouble.

Its use of Oilgear Fluid Power Drives and Transmissions has been increasing because, in the words of their engineers, Oilgear enables them among other things to synchronize many machine components easily and economically. A good example of all these points is the "short haul" video cable wrapping machine pictured above.

This machine was designed and built by the company's own men some years ago. For optimum performance, the speed of the heads should be easily and independently variable and the direction of rotation instantly changeable because the lay and pitch of the wrappings must be varied according to the requirements of the run. Moreover, the inside contour of the tube formed by the wrapping should be smooth and uniform so as to avoid setting up echo waves that interfere with transmission and vitiate signal strength.

Because of these requirements, a new drive was installed something over 4 years ago. A line shaft drives five Oilgear Fluid Power Transmissions, one at each machine head and the capstan.

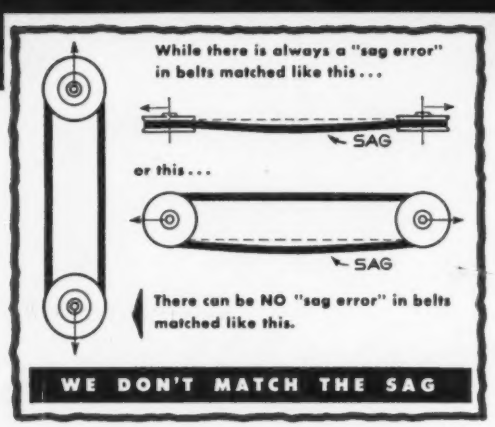
The results were these: uniformity and control of tension are so good, the machine runs at 4 times its former machine speed; it is easy to vary speed and direction of rotation of each individual head; eccentric heads gave way to concentric heads, and supply spools are now loaded to full capacity instead of ¼th to ⅛th as before; the machine is stopped less frequently for loading. Maintenance on the former drive was involved and frequent—on the Oilgear equipment it has been simple and negligible.

There is some reason to suspect that Oilgear Fluid Power with its wide range of advantages may solve some of *your* machine design problems and make the results very pleasing and profitable. Why don't you really find out? THE OILGEAR COMPANY, 1577 West Pierce Street, Milwaukee 4, Wisconsin.

OILGEAR

OILGEAR

WHAT DURKEE-ATWOOD VERTICAL MATCHING DOES FOR D-A MULTIPLE V-BELTS


While there is always a "sag error" in belts matched like this...
SAG
or this...
SAG
There can be NO "sag error" in belts matched like this.
WE DON'T MATCH THE SAG

Durkee-Atwood's new vertical V-belt matching machine eliminates the sag error always present when V-belts are matched on horizontal matching equipment. Calibration of true running length by individual testing assures equal power transmission from all belts on multiple belt drives. The D-A vertical matching machine tests belts under varied tensions up to 450 lbs. per belt, tests for vibration, and detects possible internal imperfections.

WHAT DURKEE-ATWOOD MULTIPLE V-BELTS WILL DO FOR YOU

More and more manufacturers and other users of power driven machinery are using Durkee-Atwood industrial V-belts because of their outstanding dependability. From the simplest to the toughest and most complicated drives, D-A industrial V-belt performance and life are established facts, as on-the-job records prove.

PRE-DETERMINED PERFORMANCE

When you buy Durkee-Atwood Multiple V-Belts you can count on maximum power transmission efficiency.

DURKEE-ATWOOD INDUSTRIAL V-BELTS ARE AVAILABLE IN ADEQUATE WAREHOUSE STOCKS:

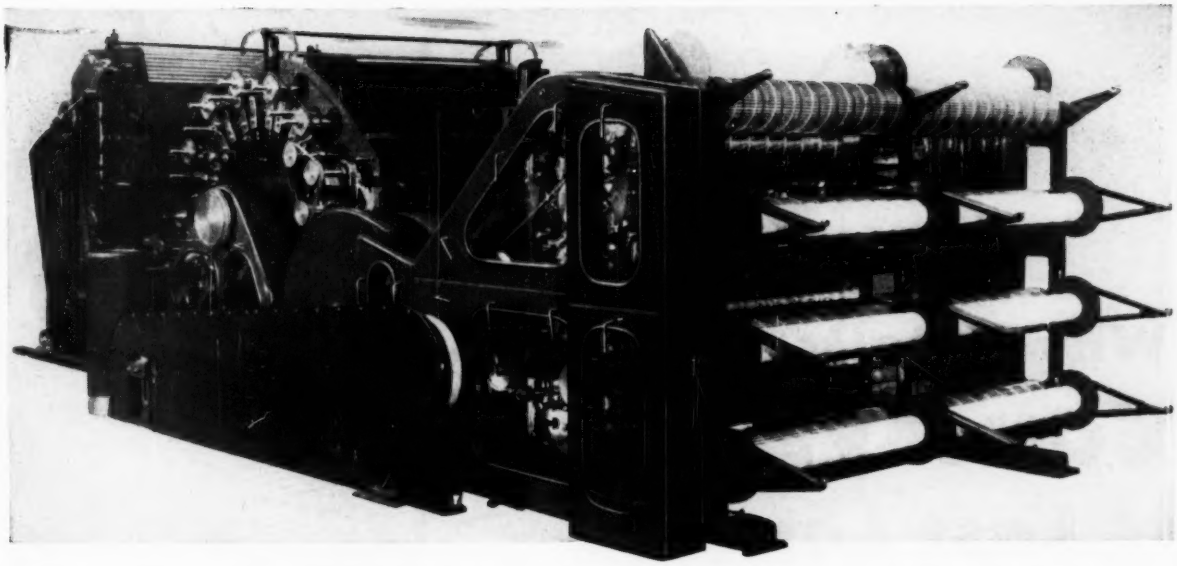
• ATLANTA • CHICAGO • CLEVELAND
• DALLAS • JERSEY CITY • OAKLAND

Each D-A multiple V-belt is tested individually on unique vertical matching machines to guarantee perfect matchability. Vertical matching insures true lengths and uniform cross-sections.

DURKEE ATWOOD

Form No. 546

DURKEE-ATWOOD CO.



130 POUNDS per HOUR

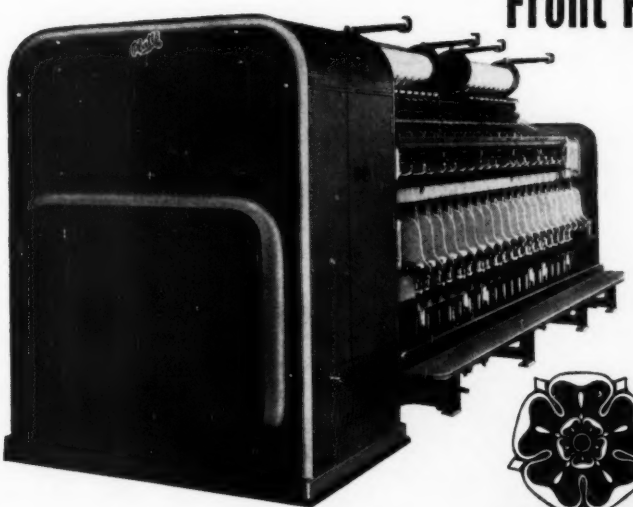
PLATT'S 72" DOUBLE WOOLEN CARD SET, with the new automatic feed and tape condenser, produces 130 lbs. per hour of high quality carpet and blanket slivers.

High speeds are possible with single rubbers and a vari-speed motion shaft. The motion shaft runs at 600 r.p.m., with complete absence of vibration.

Platt's traversing creel permits various sizes of cheeses to be made for any gauge Spinning Frame.

The stability of the Platt Condenser is outstanding at high speeds, handling whatever production any Woolen Card can deliver to it.

Front Roller Speed, 220 R.P.M.



PLATT'S NEW NARROW WIDTH LARGE PACKAGE WOOLEN RING SPINNING FRAME offers many benefits. With 12" lift, 5½" ring, bobbin containing 1½ lbs. of yarn, front roller speed of 220 r.p.m. and a spindle speed of 2600 r.p.m. on ¾ run yarn, it will produce 1 lb. per spindle per hour.

May we discuss these new developments with you.

New line of woolen machinery from the world's largest maker of textile machinery.

PLATT BROS.
SALES LTD. OLDHAM, ENGLAND

a. h.

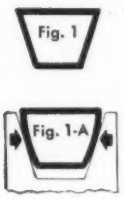
Atkinson, Haserick & Co.
TEXTILE MACHINERY AGENTS & ENGINEERS SINCE 1823
211 CONGRESS ST., BOSTON 6, MASS.
1639 W. MOREHEAD ST., CHARLOTTE 2, N. C.

Why V-Belts with CONCAVE SIDES

(U.S. PAT. NO. 1813698)

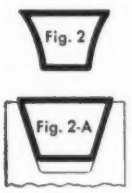
Last Longer!

Prove this yourself!



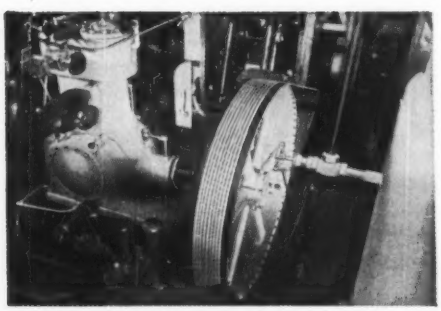
Take any *straight-sided* V-Belt (Fig. 1). Bend it—as it bends in going around a pulley. The sides will at once *bulge out* (Fig. 1-A). Clearly, those bulging sides will press *unevenly* against the V-pulley—and this causes *extra wear* at the points shown by the arrows (Fig. 1-A).

Now bend a Gates Vulco Rope with CONCAVE SIDES (Fig. 2)



Instead of *bulging*, the precisely engineered CONCAVE SIDES merely *fill out* to *fit exactly* in the sheave groove (Fig. 2-A). The sides press *evenly* against the V-pulley. All wear is distributed *uniformly* across the *full width* of the Gates Vulco Rope—and this means *longer* belt life and *lower belt costs* for you!

When you buy V-Belts, be sure to get the V-Belt with the CONCAVE Sides—the Gates Vulco Rope!



Typical Gates Vulco Rope Drive—the Gates V-Belts are built with Concave Sides to insure longer belt wear.

Gates VULCO ROPE DRIVES

REG. U. S. PAT. OFF.

Gates Engineering Offices and Jobber Stocks are located in all industrial centers of the United States and in 71 foreign countries.

THE GATES RUBBER COMPANY
DENVER, U.S.A.

WHY "DOCTOR" YOURSELF?

You save trouble and money in the long run when you call in a Specialist!

Prescribing lubricants for your complicated machines is, in a way, like prescribing medicine for yourself...a single mistake can be fatal. That's why it pays to call in a Specialist for consultation and advice when lubrication problems arise.

Socony-Vacuum has been serving industry for 88 years—far more than any other oil company. During this time we have built up a vast storehouse of lubrication knowledge and experience—have used this priceless information to develop top-quality oils and greases for every industrial need.

Working with you, we will apply this knowledge to diagnose your lubrication needs, prescribe the right oils and greases—install a program of Correct Lubrication. This cooperative effort will improve your production—reduce your maintenance costs.

Can you afford to accept anything less for your plant? Call your Socony-Vacuum representative.

Socony-Vacuum

SOCONY-VACUUM

Correct Lubrication

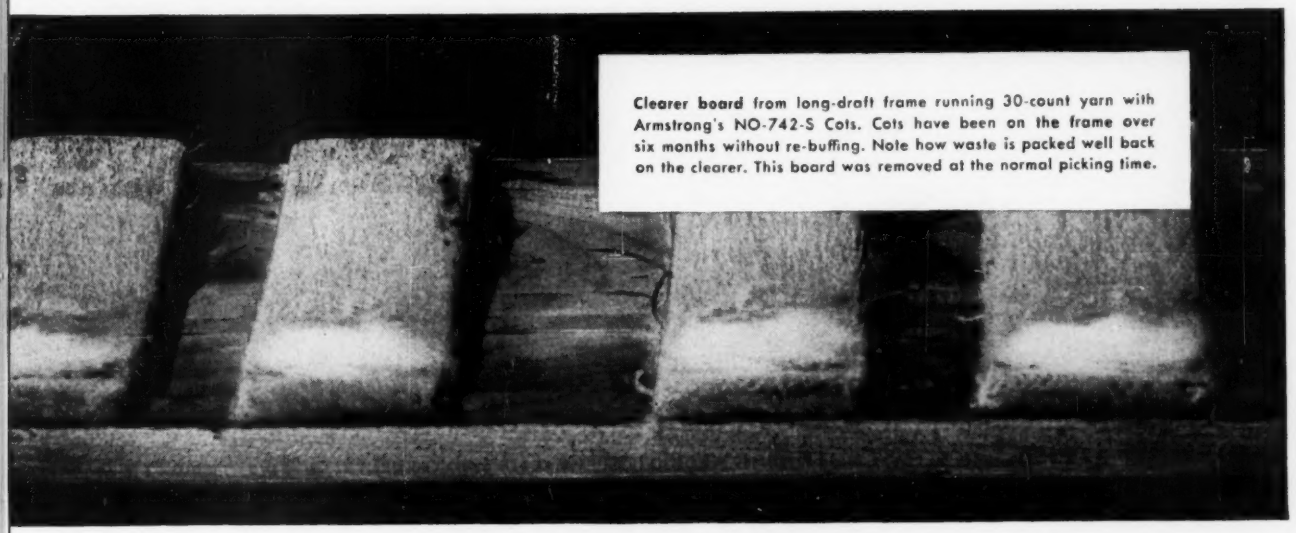
FIRST STEP IN CUTTING COSTS

SOCONY-VACUUM OIL COMPANY, INC., and Affiliates: MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION

 For more information, write direct or use Reader Service post card.

MORE THAN EIGHT MONTHS AFTER RE-BUFFING, you can still see the "teeth" of Armstrong's NO-742-S Accotex Cot. The "bite" of this unique drafting surface carries loose fibers far back on the clearer, where there's no chance of their falling off and causing yarn irregularities or broken ends.

ARMSTRONG'S



Clearer board from long-draft frame running 30-count yarn with Armstrong's NO-742-S Cots. Cots have been on the frame over six months without re-buffing. Note how waste is packed well back on the clearer. This board was removed at the normal picking time.

See how this NO-742-S Cot stops eyebrows before they start

The clearer board above shows you how effectively Armstrong's NO-742-S Cots eliminate even the most serious eyebrowing. The thousands of tiny "teeth" on the spinning surface of this lap-resistant Accotex® cot pack waste fibers well back on the clearer.

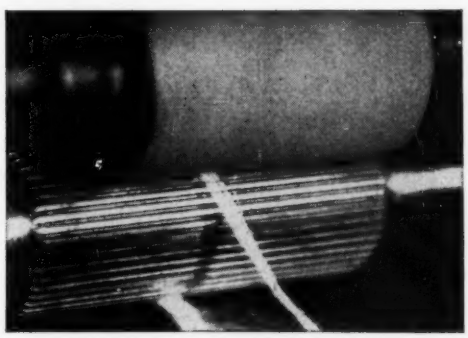
Mill men who have tested and used NO-742-S cots are enthusiastic about them. Says one supervisor, "When all the other cots show eyebrows, these new ones don't." Another supervisor puts it even more strongly. "With normal picking schedules, we've *never* had an eyebrow since we've been using NO-742-S Cots."

Only one re-buffing per year.

A third mill man likes the clean operation and long life of the NO-742-S. "Your NO-742-S Cot," he reports, "runs exceptionally clean without slicking or glazing. As a matter of fact, I only have to re-buff them once a year."

If you've been seeing too many eyebrows on your clearer boards, this is the cot you need. The NO-742-S has stopped eyebrowing on all kinds of spinning equipment and on every type and count of yarn tested.

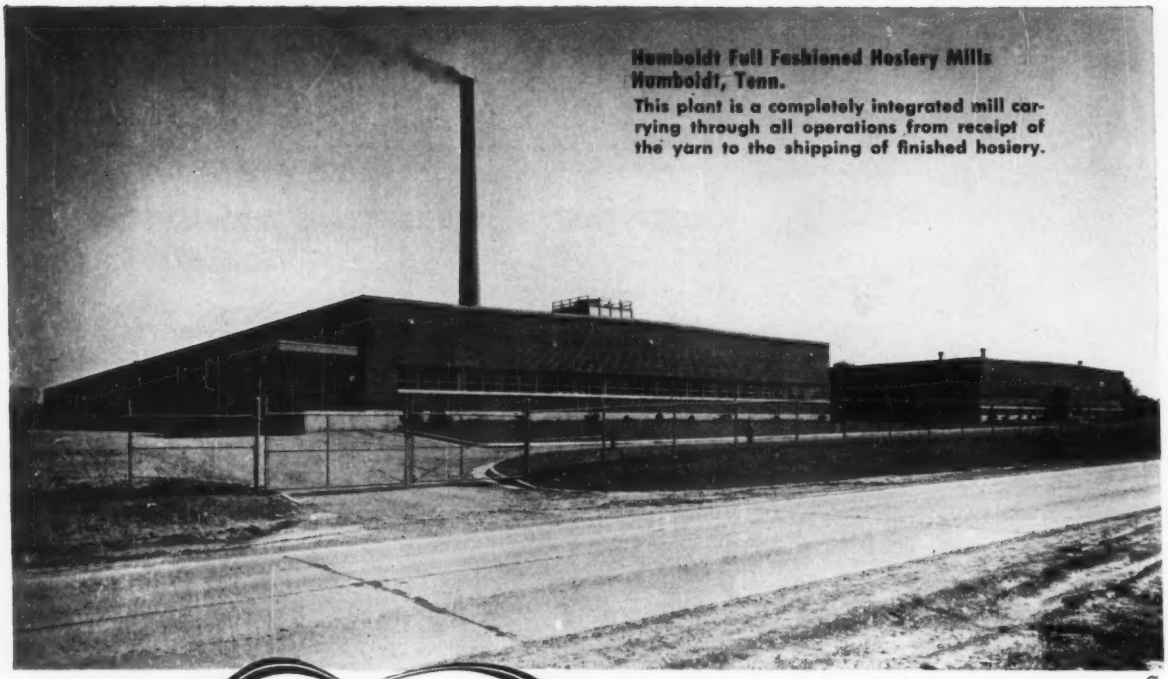
Your Armstrong man will be glad to help arrange a test of NO-742-S cots on your frames. Call him or write direct to Armstrong Cork Company, Textile Products Department, 6501 Dauphin St., Lancaster, Pa.



WITH REVOLVING CLEARERS, USE THE LAP-RESISTANT J-490 COT

For spinning fine yarn, and for any count yarn with revolving clearers, Armstrong's J-490 Accotex Cots have proved ideal on thousands of frames. Special electrolytes added to the J-490's long-wearing synthetic rubber composition make it highly resistant to lapping. The J-490 runs exceptionally clean, too—it's not affected by oil, dyes, or commonly used textile solvents. If lapping is a problem, call your Armstrong man today and arrange for a test side of these lap-resistant J-490 Accotex Cots.

ACCOTEX COTS



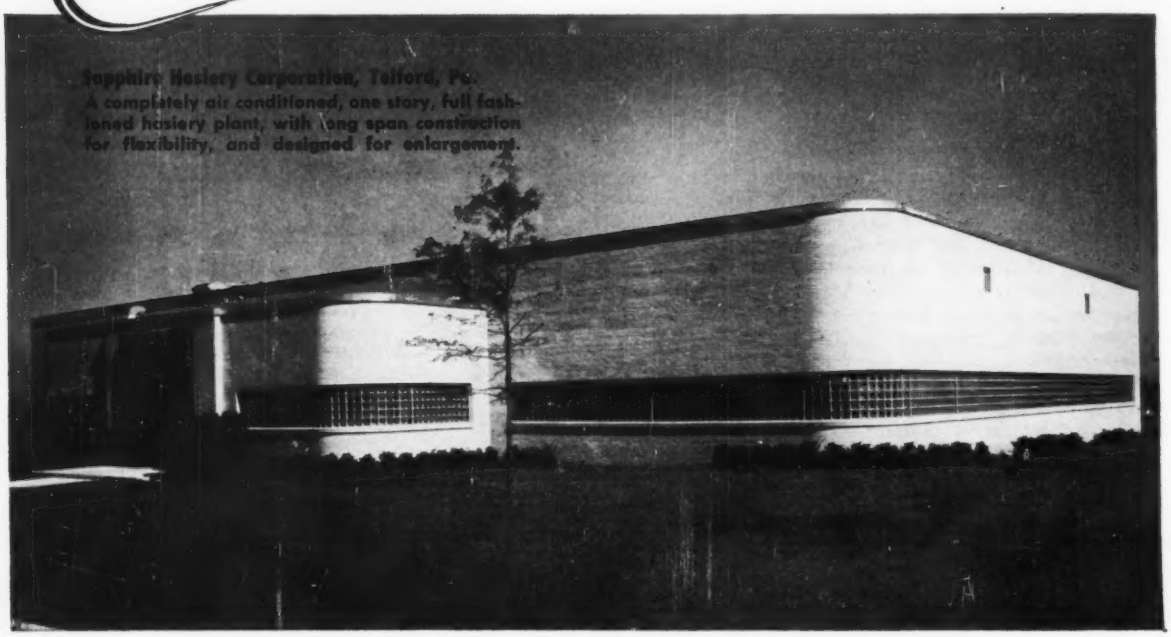
Humboldt Full Fashioned Hosiery Mills
Humboldt, Tenn.
This plant is a completely integrated mill carrying through all operations from receipt of the yarn to the shipping of finished hosiery.

LOCKWOOD GREENE
Projects
in
KNIT GOODS

Lockwood Greene has completed over 300 engagements in the Knit Goods field and has had over 4,000 engagements in the entire textile field.

LOCKWOOD GREENE
ARCHITECTS-ENGINEERS

BOSTON 9, MASS.	NEW YORK 20, N. Y.	SPARTANBURG, S. C.
40 Central Street	10 Rockefeller Plaza	Montgomery Building



Sapphire Hosiery Corporation, Telford, Pa.
A completely air conditioned, one story, full fashioned hosiery plant, with long span construction for flexibility, and designed for enlargement.

Ensemble by Monk

Line... Fabric... Needlework

Line, fabric and needlework make this gown a costly, exclusive "original". But its vibrant eye-compelling colors can be achieved even in "popular-priced lines" with National Aniline Dyes.

Sensing the current demand for rainbow-hued mixtures of new and traditional fibers, we have been steadily expanding our line of dyes and colors. Seldom a month passes without the addition of interesting new shades for your weaves and prints.

With fully-staffed Technical Service Laboratories and ample warehouse stocks nearby, we can give you prompt service from pre-season samples right through production runs. Whatever your dyestuff requirements, always phone National Aniline *first*.

National Aniline Dyes

NATIONAL ANILINE DIVISION ALLIED CHEMICAL & DYE CORPORATION • 40 RECTOR STREET, NEW YORK 6, N. Y.

Boston Providence Philadelphia Chicago San Francisco Portland, Ore. Greensboro Charlotte Richmond Atlanta Columbus, Ga. New Orleans Chattanooga Toronto

Allied Chemical

L. F. Dommerich & Co., Inc.

Executive and General Offices

271 MADISON AVENUE

NEW YORK 16, N. Y.

Telephone: Murray Hill 3-8650

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For Manufacturers and Merchants

Inquiries as to our services solicited

●

BUSINESS ESTABLISHED 1840

A new market for textiles?

Passionate faith in one's own idea is a familiar phenomenon. But the idea doesn't mean much until other people —and the right kind of people—also get at least reasonably devoted to it.

The Basic Materials Exposition is a powerful new sales idea. Not because we who brought it into being think so, but because a lot of other people do. People who count: your customers, for example. And your competitors—in the materials field. We have documented evidence of what your customers think. And a blue-ribbon list of the companies that have already taken space in the 1954 show tells what your competitors think.

Many diverse materials are represented in the Basic Materials Exposition by great companies that have paced its growth. The baffling thing is that the textile industry has yet to seize this opportunity to create markets in the industrial goods field – to recognize *textiles* as *engineering materials*. It is baffling, chiefly for two reasons. First, because certain hard-hitting, successful companies have aggressively entered the industrial field with apparently impressive results. Second, because there are so many opportunities in this area for superior profit margins.

Perhaps the textile industry is reluctant to invade this unfamiliar area of operation and knowledge. But, if you have had a deep-seated feeling that you could make a go of it, we suggest you give thought to a new institution that ought—if logic has a place in business—to enable you to find out swiftly and at remarkably low cost. That institution is the *second* Basic Materials Exposition, to be held in Chicago, May 17-20, 1954.

The Basic Materials Exposition (first held last June in Grand Central Palace) is the only medium that makes possible the direct comparison of claims and performance of each material with all others—first hand to the men who have the decisive voice in the specification and purchase of materials that go into all products.

The Basic Materials Exposition is the most important single marketing event that has ever happened in the materials industries. We live in an economy that dictates change, restyling, substitution, new design. Materials are the key to new and better products. And materials must be compared side by side by the men who design and engineer the world's products to enable them to select the best for each product.

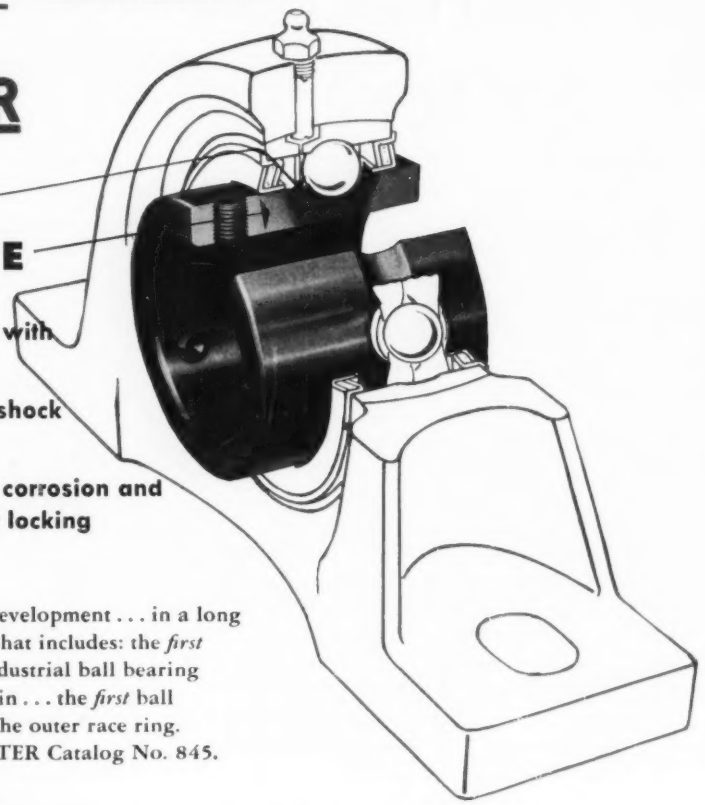
If you have a concept of your products as having actual or potential application as engineering materials, we believe you will find that the Basic Materials Exposition provides an exceptional opportunity for you to make a penetrating market survey to that end. A note to the show's producers, Clapp & Poliak, Inc., 341 Madison Avenue, New York 17, will bring you details.

ZONE HARDENING*

for MAXIMUM LIFE EXPECTANCY in EVERY BEARING!

Only **SEALMASTER**

is **HARD HERE**
but **SOFT HERE**



- to permit race-to-shaft locking with increased holding power
- to insure greater resistance to shock and vibration
- to minimize danger of fretting corrosion and eliminate shaft wear by firmer locking of bearing to shaft

Zone Hardening is another major development . . . in a long history of SEALMASTER advances that includes: the *first* self-aligning, permanently sealed industrial ball bearing unit . . . the *first* outer race locking pin . . . the *first* ball retainer riding the inner surface of the outer race ring.

Write for your copy of SEALMASTER Catalog No. 845.

ZONE HARDENED
PERMANENTLY SEALED
SELF-ALIGNING • PRE-LUBRICATED
FLOATING BALL RETAINER

***ZONE HARDENING**

is a completely automatic heat treating process by which the inner race ring of SEALMASTER Ball Bearing Units is hardened through ball path section *only*. (See cutaway view.) The extended part of the inner race is left in its original metallurgically soft, tough state. Hardened set screws are mounted through this soft portion, to provide firm race-to-shaft locking and the performance advantages mentioned above. ZONE HARDENING is patented—exclusively SEALMASTER'S!

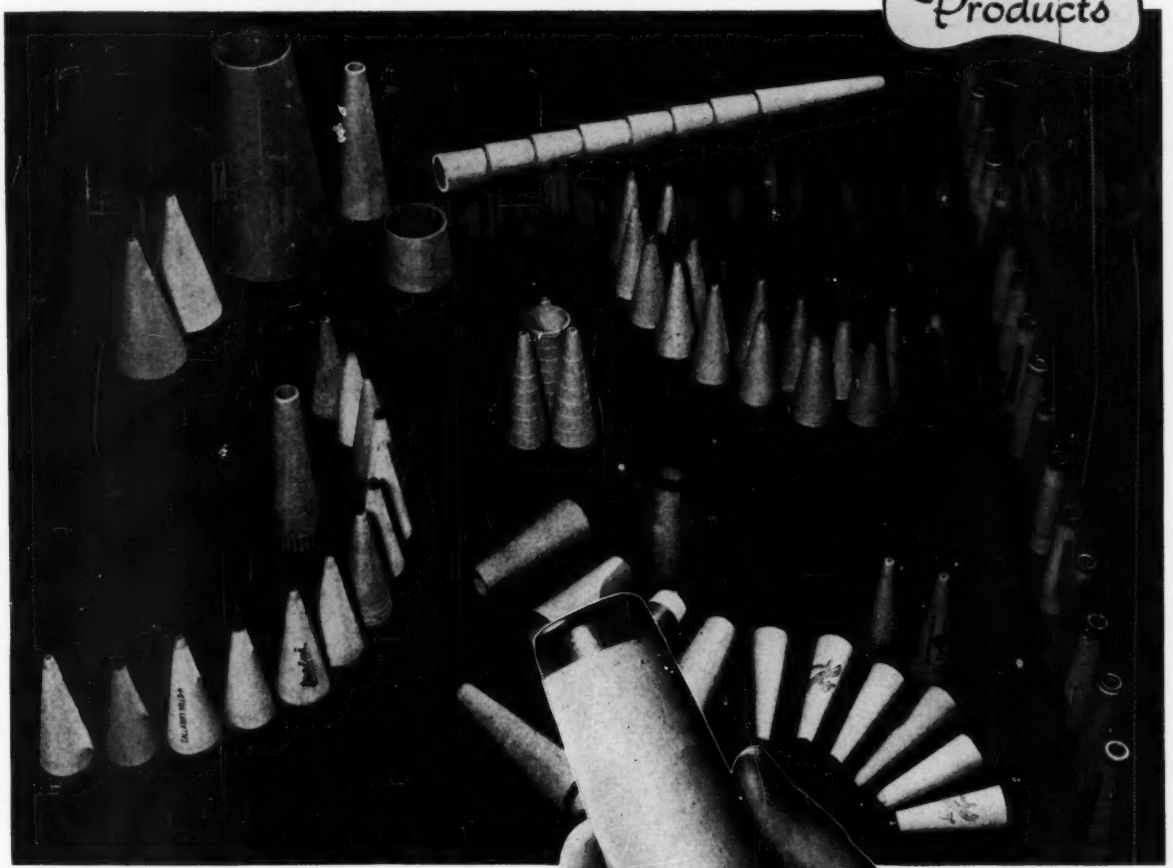
SEALMASTER BEARINGS
A Division of Stephens-Adamson Mfg. Company
10 Ridgeway Avenue, Aurora, Illinois

FACTORY REPRESENTATIVES AND DEALERS IN ALL PRINCIPAL CITIES

SERVING THE TEXTILE INDUSTRY SINCE 1899

SONOCO

Precision Paper Products



CONES by Sonoco—standard of the world! For more than 50 years, Sonoco research has been successful in the development of a right cone and taper for every yarn.

Sonoco cones are supplied with various surfaces and can be printed inside or out and are available with notches, scores, perforations, and in many engineered nose or tip designs in special tapers. Lacquer tipping, dyed base and tip, and striped base can be furnished on cones as a means of quick identification.

Our complete laboratory and engineering departments are available for consultation.

SONOCO
SERVES THE WORLD
PAPER CARRIERS
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SONOCO PRODUCTS COMPANY
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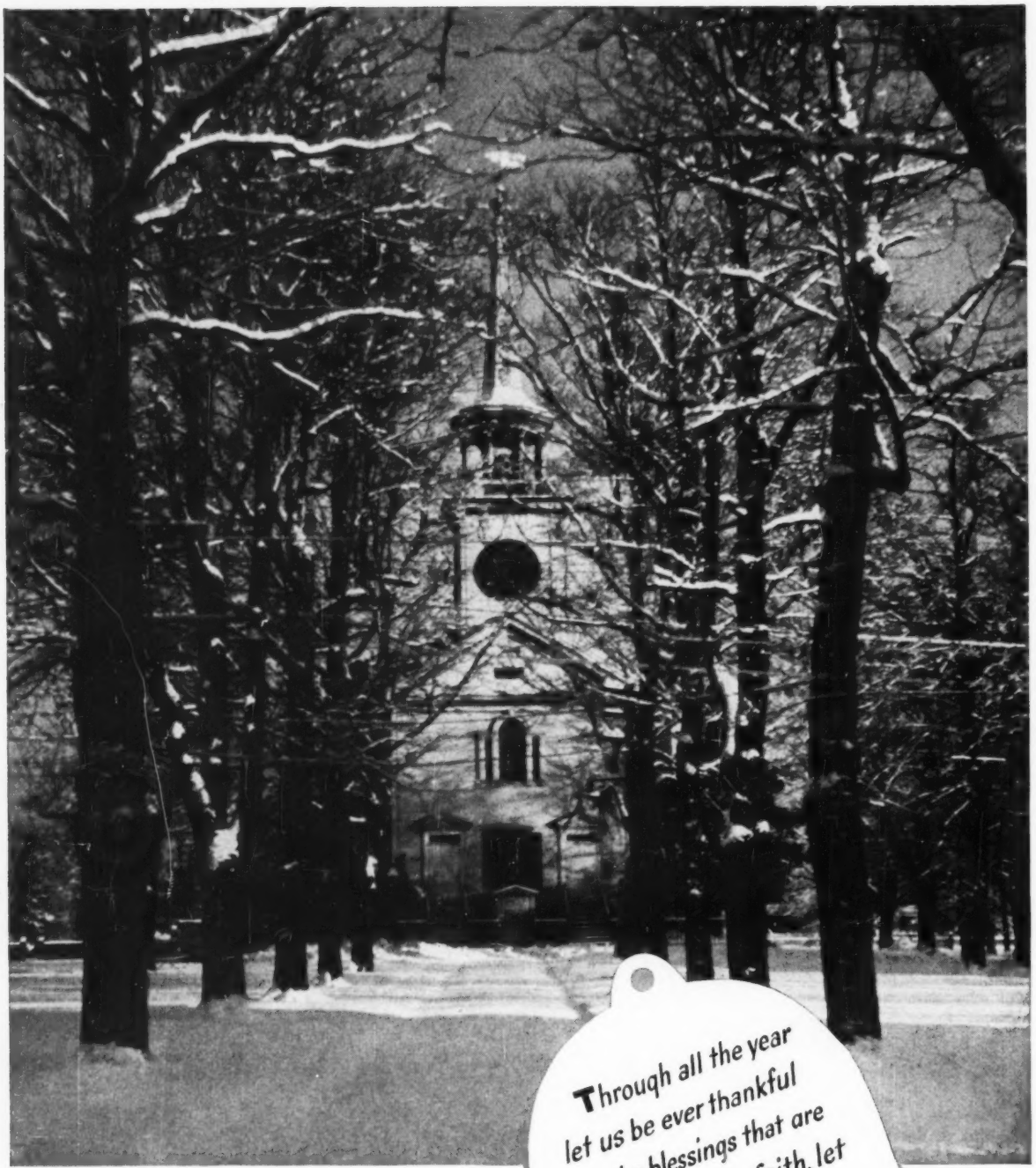
DEPENDABLE SOURCE OF SUPPLY



Through all the year
let us be ever thankful
for the blessings that are
ours. Strong in faith, let
us be zealous in our
determination to maintain
the freedoms and privileges we enjoy.

HOWARD BROS. MFG. CO. WORCESTER, MASS.

Harry C. Bdey
President

THE TRADE CALLED FOR:

Shrinkage control and crease resistance on a viscose-Orlon striped weave...*

The finisher delivered a perfect job, thanks to Sandoz Technical Service

Problem:

Finishes normally used to produce dimensional stability and crease resistance require high curing temperatures which tend to turn the new thermoplastic fibers yellow, hard, or brittle.

Solution:

Sandoz' new urea formaldehyde resin, FINISH EN, made it possible to work out the perfect formula for this fabric. The low temperature curing properties of FINISH EN enabled the finisher to cure the goods at 240-260° F. In this manner the white Orlon section of the fabric was preserved and, by combining CUPRO-FIX and FINISH EN, the dyed rayon possessed excellent color permanency. The fabric showed satisfactory shrinkage control and crease resistance and the hand was very attractive.

FINISH EN, in addition to viscose-Orlon blends, also offers great advantages for blends consisting of viscose and either Dacron* or Dynel, Acrilan® or any other combinations of these newer man-made fibers.

• • •

If you are faced with any problem involving these or other fabrics, Sandoz Technical Service may be able to help you solve it. Call your nearest Sandoz branch in Hudson, Mass.; Fairlawn, N. J.; Philadelphia; Charlotte; Cincinnati; Los Angeles; Montreal or Toronto. Or write to Sandoz Chemical Works, Inc., 61 Van Dam Street, New York 13, N.Y.

*Du Pont Trademark

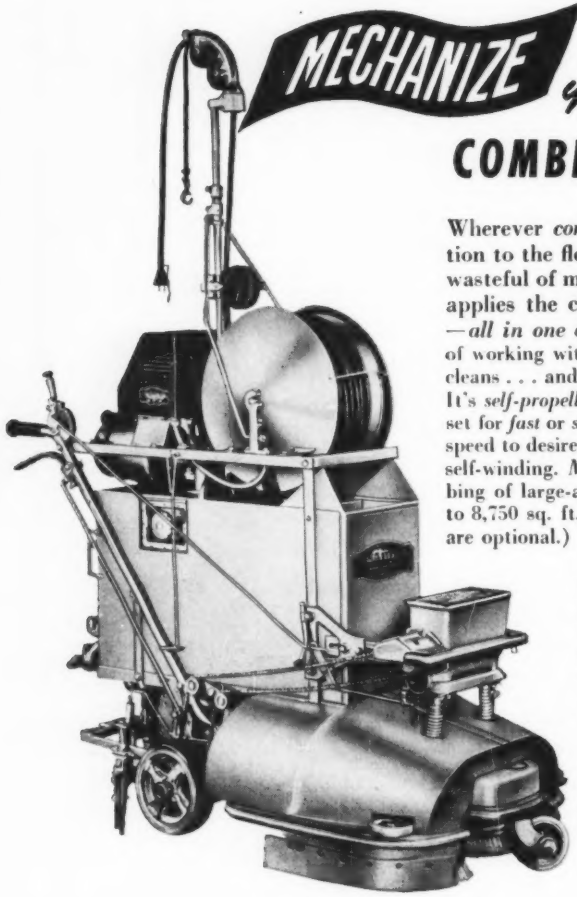
SANDOZ

SANDOZ

THINKS AHEAD WITH TEXTILES

Let's not clean away dollars and man-hours with costly, inadequate floor care

MECHANIZE your floor-cleaning with a COMBINATION SCRUBBER-VAC!



Wherever *combination-machine-scrubbing* is the practical solution to the floor-cleaning problem, any lesser, slower method is wasteful of money and manpower. A *Combination Scrubber-Vac* applies the cleanser, scrubs, flushes if required, and picks up —*all in one operation!* Maintenance men like the convenience of working with this single unit . . . the thoroughness with which it cleans . . . and the features that make the machine simple to operate. It's *self-propelled*, and has a *positive* clutch. There are no switches to set for *fast* or *slow*—slight pressure of the hand on clutch lever adjusts speed to desired rate. The powerful vac performs quietly. Cable reel is self-winding. *Model 213P Scrubber-Vac* at left, for heavy duty scrubbing of large-area floors, has a 26-inch brush spread, and cleans up to 8,750 sq. ft. per hour! (Powder Dispenser and Level Cable Wind are optional.)

Finnell makes *Scrubber-Vac Machines* in a full range of sizes — for small, vast, and intermediate operations. From this complete line, you can choose the size that's exactly right for *your* job (no need to *over-buy* or *under-buy*). It's also good to know that you can lease or purchase a *Scrubber-Vac*, and that *a Finnell floor specialist and engineer is nearby* to help train your maintenance operators in the proper use of the machine . . . to recommend cleaning schedules for most effectual care . . . and to make periodic check-ups. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 1901 East St., Elkhart, Ind. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

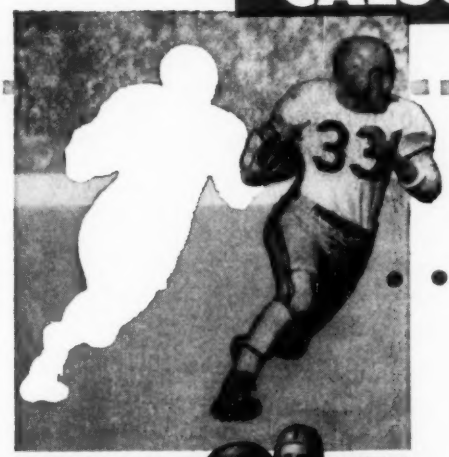
Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

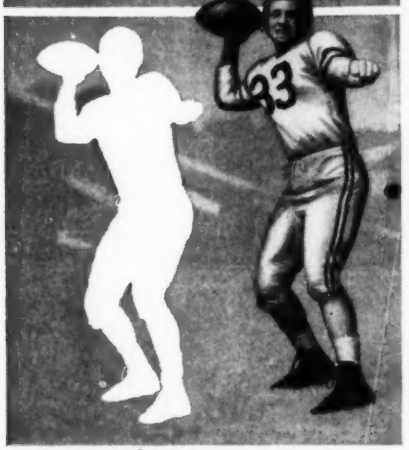
a genuine triple-threat performer!

CALSOLENE OIL HSA



In Synthetic Yarn and Fabric Dyeing!

• • **RUN** tests and you'll find CALSOLENE OIL HSA works wonders in synthetic dyeing operations . . . as a lubricant to prevent chafing and cracking or as a thorough wetting agent preventing ballooning of fabrics in the dyebath.



In Leveling Operations!

• • **PASS** this good word along! CALSOLENE OIL HSA is the fastest, most effective, most stable leveling agent you could use!

In Dyeing Fabrics To Be Waterproofed!

• • **KICK** . . . you just won't have any "kicks" about the way CALSOLENE OIL HSA rinses and provides non-rewetting properties in preparation for water repellent finishing!

Ask for a trial run . . . and you'll join the volume CALSOLENE OIL HSA users!

Complete information in AHCO Technical Bulletin 109.

ARNOLD, HOFFMAN
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AHCO PRODUCTS

For more information, write direct or use Reader Service post card.

First in speed . . . First

The "Reading 100" Full-Fashioned Knitting Machine is designed and built for a speed of 100 courses per minute in regular mill operation.

Because the "Reading 100" is first in speed, it is first in production. Extra courses per minute, extra dozens — not just under experimental conditions, but in *your* mill.

When you put this high-speed, 30-section machine to work, these features will stand out:

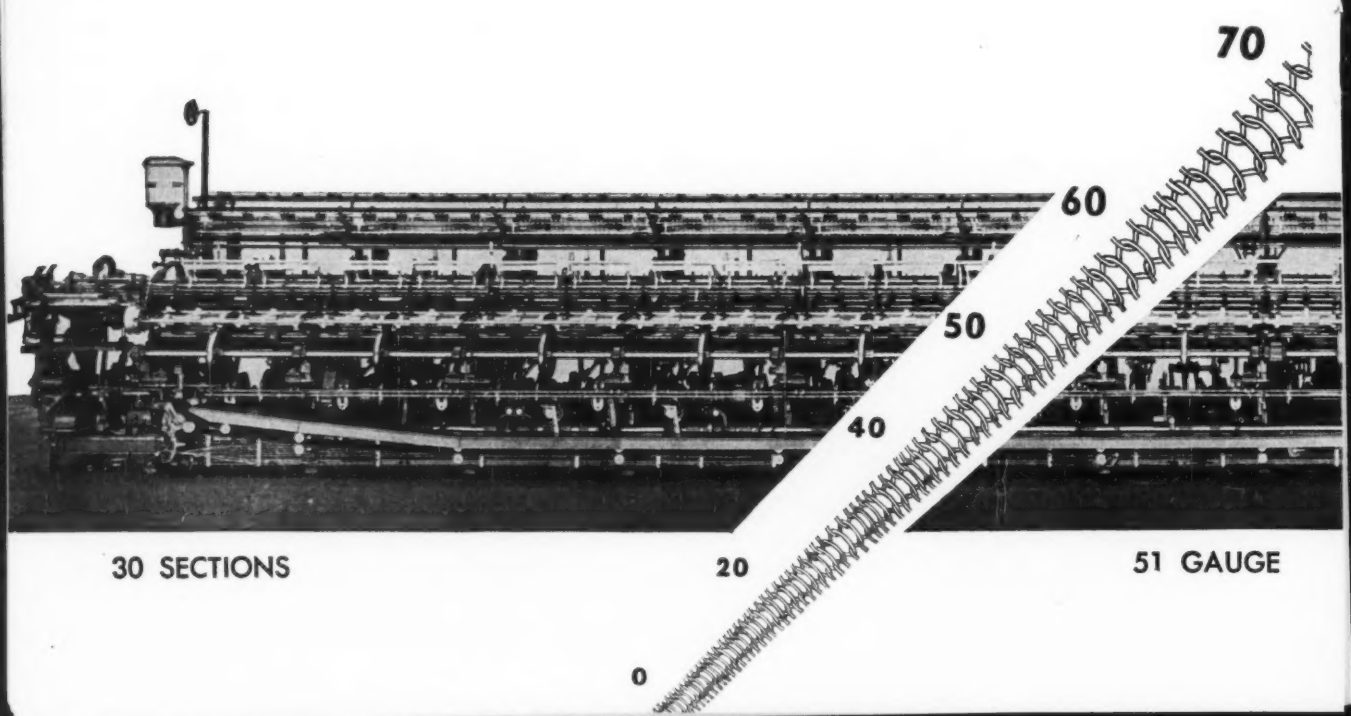
Smooth, effortless performance . . . The "Reading 100" is practically vibration-free because of increased balancing cam action. It's the first multiple section full-fashioned knitting machine built for this high speed operation.

High narrowing speed . . . End control with its rigid construction allows a narrowing speed of 75 courses per minute. The "Reading 100" narrows faster than the top operating speed of some machines now in use.

Simplicity of operation . . . All cam adjustments, except needle bar and balancing cams, are made at one point. Less time required for making or checking settings. Makes it easy to keep all settings synchronized.

With the new "Reading 100", the Automatic Speed Selector provides unlimited stations for making speed changes throughout the knitting of the blank. With a special hand-operated switch, a lower constant speed can be achieved for the production of samples, or breaking in new friction shoes without re-setting the speed control chain.

The "Reading 100" will prove its worth to you — in the finest stocking fabrics at a speed never before achieved. Talk to the "Reading 100" representative or write us for full details.



in production

100

95

90

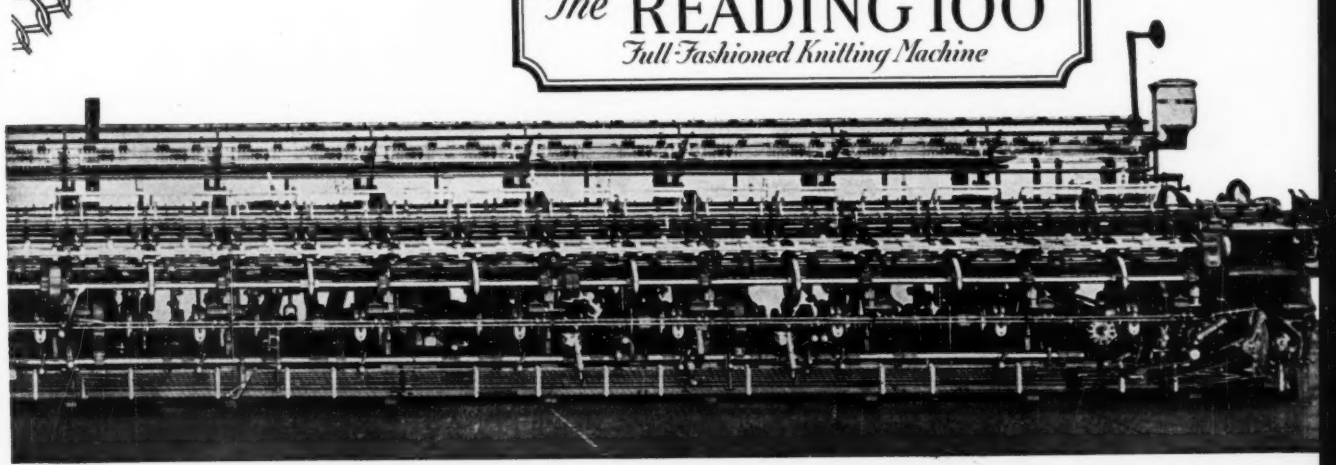
85

80

75

100 courses per minute

The "READING 100"
Full Fashioned Knitting Machine

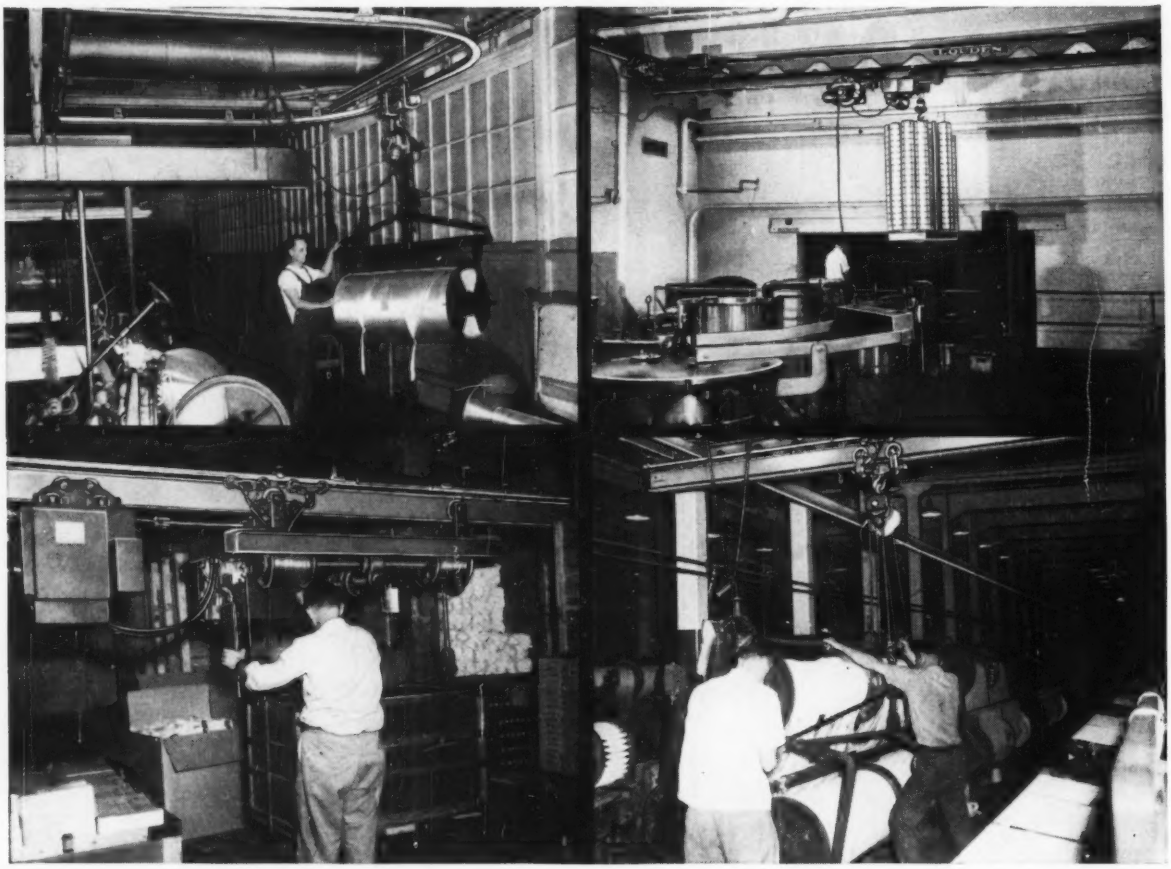


60 GAUGE

66 GAUGE

TEXTILE MACHINE WORKS
READING, PENNA., U. S. A.

You can do it better with Louden engineered monorail!



Let Louden's long experience solve your textile handling problems

Louden pioneered monorail handling. This longest and broadest experience with the most adaptable and most flexible of all materials handling methods naturally offers many *extra* benefits to men seeking answers to any handling problems. Shown above are Louden Monorail handling equipment in four of the nation's leading textile mills. On performance, Louden is the preferred choice of many of this country's most progressive operators. Benefit by Louden experience and success on YOUR next handling problem.

THE LOUDEN MACHINERY COMPANY
4101 Court St., Fairfield, Iowa
A Subsidiary of Mechanical Handling Systems, Inc.

SEND FOR THIS BOOK— Write for your copy of "Economical Material Handling" . . . full of time-saving, cost-cutting ideas and case histories. Free . . . no obligation.

Louden
MONORAILS & CRANES

Since 1867—the first name in materials handling

A WIDE VARIETY OF PRODUCTS *from* A WIDE VARIETY OF MATERIALS

REINFORCEMENTS
INSULATION
CLOTHING INTERLINING
UPHOLSTERY BACKING
FILTERS

SYNTHETICS -NATURAL FIBERS	SPECIAL MATERIALS	COARSE FIBERS
Acetate	Asbestos	Jute
Rayon	Rock Wool	Hair
Nylon	Glass	Sisal
Cotton		Reclaim Tire Cord
Wool		

Many new and unusual products are being developed

Because of the unique way the Rando-Feeder and Rando-Webber economically form a *Random Web* from almost any type of waste or staple fiber, many new products are now being developed . . . products unheard of a few years ago. Imagine making a web from hair, glass, asbestos or cocoanut fibers! All of these materials cannot be handled successfully on any other equipment.

Non-oriented webs have no crosswise, vertical or horizontal pattern . . . have strength in all directions . . . are resilient . . . will resist delamination and splitting. Webs made by Rando-Feeder and Rando-Webber can be dry processed, needle punched, quilted, felted and heat sealed.

Send us samples of your fibers. We will make webs for test purposes. Write for details.

RANDO-FEEDERS and RANDO-WEBBERS
AVAILABLE IN 3 SIZES
Now you can make Random Webs 40", 60" or 84" wide . . . up to 2" thick.

SEE OUR EXHIBIT AT ATLANTIC CITY APRIL 26 - 30 BOOTH 812-813

TEXTILE DIVISION
CURLATOR
CORPORATION
EAST ROCHESTER, NEW YORK

Highest quality yarn costs less with

DAYCO Cots and Long

Costs go down and performance goes up from the moment you equip your frames with NEW Dayco EW-465 Cots. It's the amazing exclusive ingredient, Ibrocol, added to the synthetic rubber blend in these NEW Dayco Cots that accounts for this much-improved efficiency.

Ibrocol's chemical and mechanical action gives these cots just the right coefficient of friction needed to combat eyebrowing. With new Dayco EW-465 Cots, only the short staple fibres are removed from the yarn and are transferred well back on the clearer board away from the eyebrowing position. This means less eyebrowing and superior yarn quality for you on every frame equipped with Dayco EW-465 Cots. Equip your frames today!

Important savings in time and labor are yours, too, because reduced eyebrowing means less waste and fewer cleanings of the clearer board. Cot costs are lowered because Ibrocol retards slicking and glazing, therefore, fewer buffings are required. In addition, Daycos give you longer service life for they do not pit, groove, or develop flat spots.

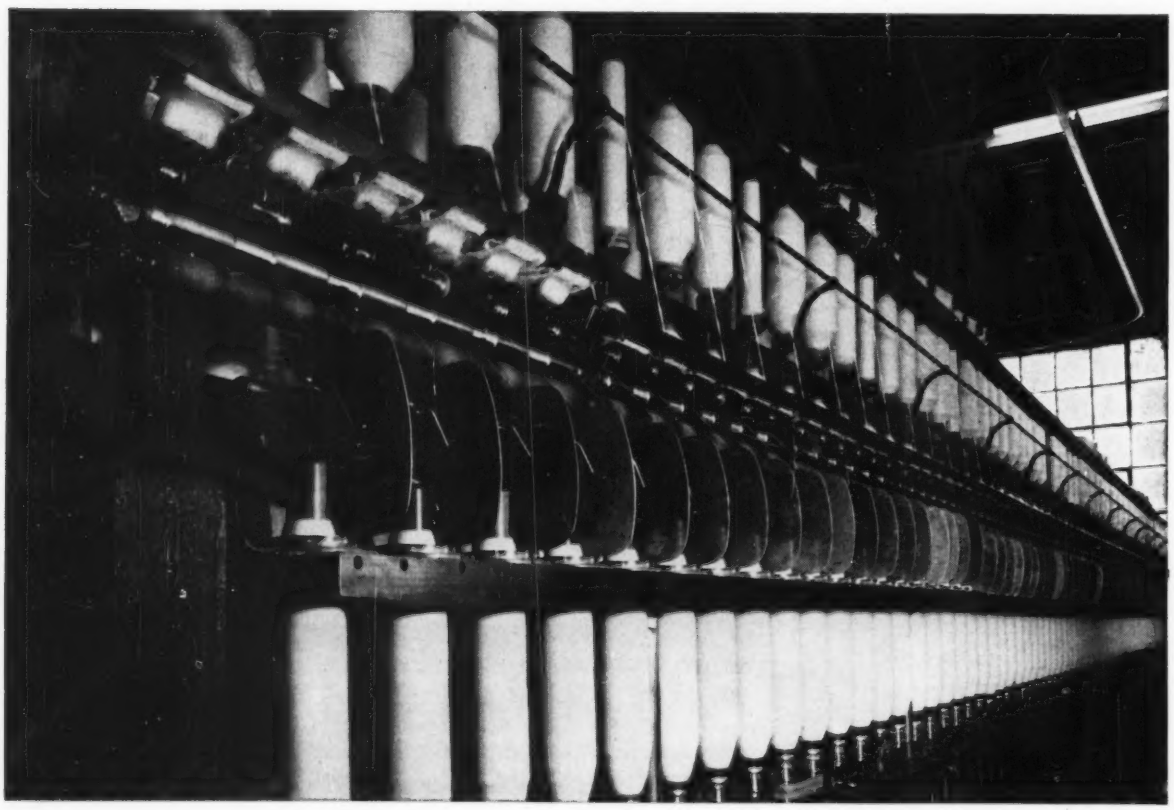
So for trouble-free spinning of higher quality yarn—natural or synthetic—convert your mill to Dayco IBROCOL Cots. For complete details see your nearest Dayton representative or mail coupon on the opposite page.

Check these Dayco Features against any other Cot

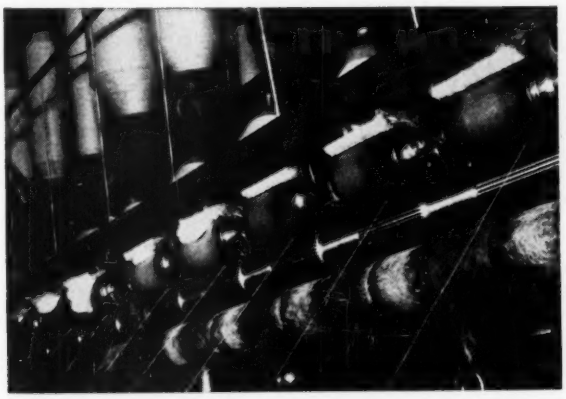
DAYCO COTS

- Successfully combat eyebrowing
- Create fewer lap ups and ends down
- Require fewer buffings
- Don't groove, pit or develop flat spots
- Unaffected by moisture or temperature changes
- Need fewer clearer board cleanings
- Draft better quality yarn
- Lower overall cot costs

New DAYCO Cot EW-465 combats eyebrowing, increases yarn quality



Draft Aprons



Note complete lack of eyebrowing on Dayco cots at right of frame as against ordinary cots at left. All cots ran same length of time.

Clearer board used with Dayco EW-465 Cots after normal run. Waste is well back under the clearer board away from eyebrowing position.

DAYCO Long Draft Aprons improve yarn quality, save time and money

Get up to 10% more uniformity in your yarn with Dayco Aprons that give better fibre control in the drafting area. Precision engineered to close tolerances, these single and double long-wearing aprons have a constant drafting ability that never varies . . . assures greater yarn uniformity.

Since Daycos never stretch or take a permanent set, you'll get faster starts after week-end shutdowns. That means savings for you in time, money and labor — plus increased uniformity in Dayco drafted yarn. Mail the coupon below for complete details.

© D.R. 1953

Dayton Rubber
Since 1905

Textile Products for Better Spinning and Weaving

Dayton Rubber Company, Textile Division
Woodside Bldg., Greenville, S. C.

Dayton Rubber Company, Textile Division, Dept. 341
Woodside Building, Greenville, S. C.

Tell me more about how I can get higher quality yarn at lower cost.

☐ Send literature on Dayco Cots and Long Draft Aprons

☐ Have your representative call

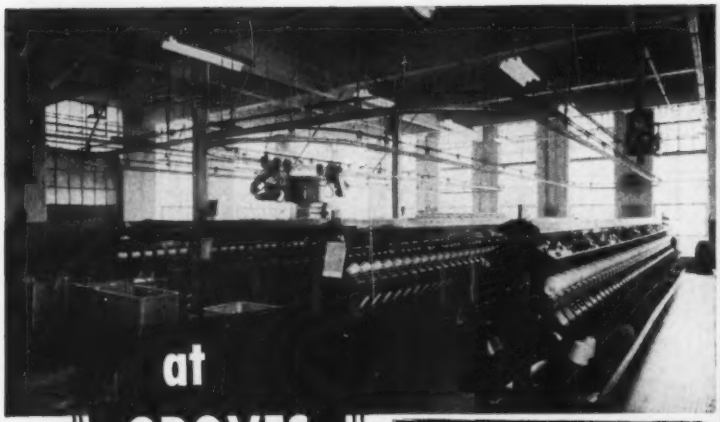
*Name*_____

*Firm*_____

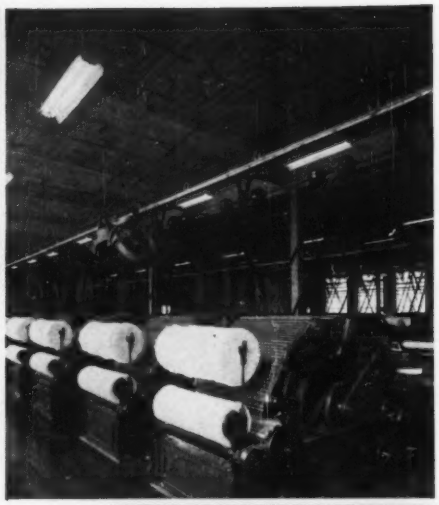
*Address*_____

*City*_____ *Zone*____ *State*_____

 For more information, write direct or use Reader Service post card.



Cleaning over winders.



Ceiling cleaning in card room.

at GROVES THREAD it's quality control bale to sale...

A clean mill produces quality thread. That's why Groves Thread Company, Gastonia, N. C., uses American Mono-Rail Automatic Cleaning throughout entire operation.

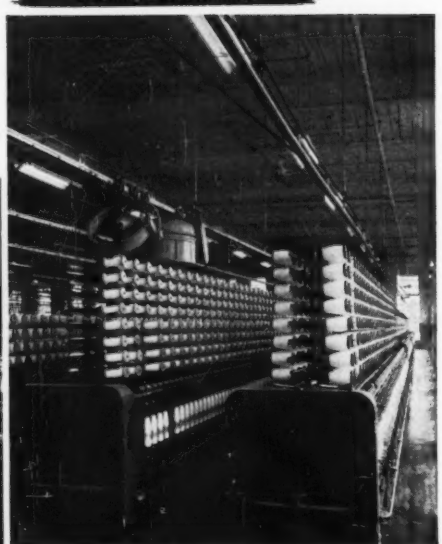
An American MonoRail engineer will gladly explain all the advantages of Automatic Cleaning at your convenience. Write today for an appointment.

Cleaning over spinning.

THE AMERICAN MONORAIL COMPANY

13108 ATHENS AVENUE ● CLEVELAND 7, OHIO

Cleaning over spoolers.



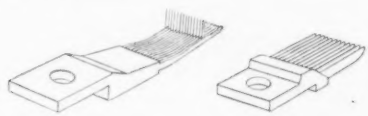
Cleaning over twisters.

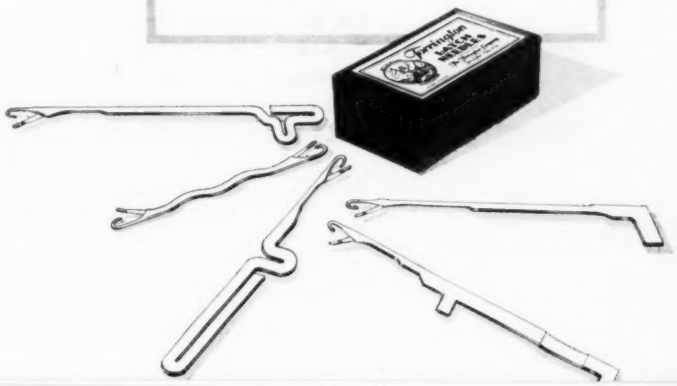
Background for quality knitting...

Many of the "names" in knitting which enjoy widest consumer acceptance and confidence, rely on the smooth, dependable performance of Torrington Needles — a recognized factor in quality knitting.

In every detail, Torrington Needles assure uniform excellence — they are precision-made, highly polished, machine-tested to give top-quality results in fine knitting.

Torrington Quality is now available for all your leaded needle requirements. Consult our nearest office for details.





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Torrington, Conn., U. S. A. • Established 1866

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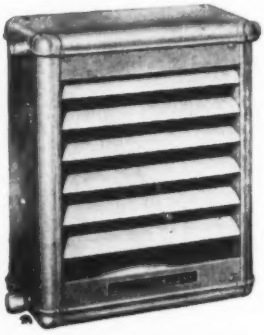
Spot Heating?

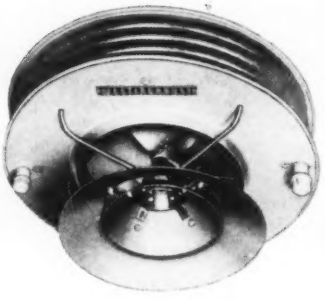
Complete System?

GET ALL 7 UNIT HEATING ECONOMIES

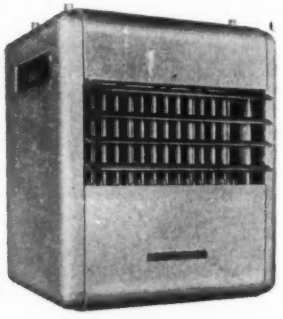
WITH Westinghouse SPEEDHEATERS®



HORIZONTAL SPEEDHEATER
Get 7 to 8 times the output of conventional radiators. 11 standard sizes available for steam or hot water. Capacities from 17,800 to 300,500 BTUH.



DOWNBLAST SPEEDHEATER
(with Multiple Cone Diffuser)
Delivers heat into working areas. 12 standard sizes for steam or hot water. Capacities from 25,000 to 400,000 BTUH.



GAS-FIRED SPEEDHEATER
Will run on low-cost natural, manufactured or LP gas. 7 standard sizes with capacities from 25,000 to 200,000 BTUH. Units have seal of approval of AGA Testing Laboratory.

TO ANSWER ANY UNIT HEATING PROBLEM, ONLY THE COMPLETE WESTINGHOUSE LINE GIVES YOU ALL THESE DOLLAR-SAVING ADVANTAGES:

1. **Instant, Low-Cost Heat**—where and when you want it without long, costly warm-up periods.
2. **Easy Installation**—all models equipped for simple hanger mounting. Minimum piping gives quick fit in tight spots.
3. **Any Application**—wide range of heating capacities—comfort or process—for spot heat or complete systems.
4. **Dependability**—heavy gauge, welded steel construction gives years of service under the toughest conditions.
5. **Design Efficiency**—adjustable louvres direct heat to working area, provide flexible heat distribution pattern.
6. **Quiet Operation**—efficient fan design gives top performance at low sound level.
7. **Dependable Westinghouse Motors**—Replacement motors available on exchange basis from Westinghouse stocking points across the country.

For full details on the Speedheater model best suited to your needs, call your nearest Westinghouse office for Catalogs 1521 (Steam and Hot Water) and 1525 (Gas-Fired), or write Westinghouse Electric Corp., Sturtevant Division, Boston 36, Mass.

WESTINGHOUSE SPEEDHEATERS

YOU CAN BE SURE...IF IT'S Westinghouse

J-80342

NOW

a 26% active slurry form of IGEPON made from tallow... costing only 9½ cents per lb.

IGEPON TE-42

AVAILABLE IN BULK QUANTITIES

ANTARA is now offering the first tallow-based synthetic detergent ever made for commercial use.

Because of its high performance at lowest possible cost, the new IGEPON TE-42 promises many new uses in broad fields of application.

If you use a detergent in your operations, we suggest you try the tallow-based IGEPON TE-42, a slurry form sold in bulk at 9½ cents per pound, f.o.b. shipping point.

Write today for technical data and a sample of IGEPON TE-42.

YOU CAN DO IT BETTER WITH AN IGEPON

gdc ANTARA gaf

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Please send me technical data and a sample of **IGEPON TE-42**

NAME _____

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COMPANY _____

ADDRESS _____
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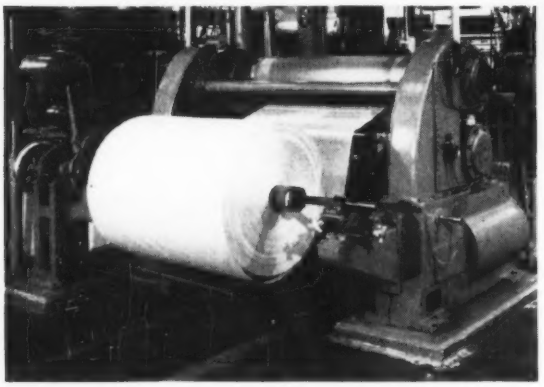
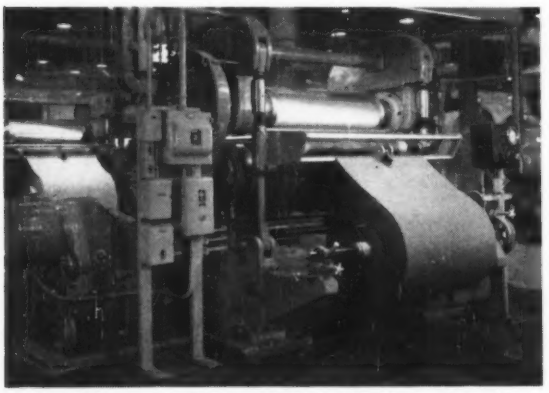
View of finishing operation at The Springs Cotton Mills, Grace Bleachery Division showing Appleton Machine Company 20 Ton Embossers and 50 Ton Schreiner Calenders.

Colonel Elliott Springs Chooses Appleton



One of three Appleton 20 Ton Embossers in use at The Springs Cotton Mills, Grace Bleachery Division.



One of three Appleton 50 Ton Schreiner Calenders specially adapted for everglaze finishes at Springs Cotton Mills, Grace Bleachery Division.

The uncommon elegance of Springmaid sheets can be attributed to Colonel Elliott Springs' shrewd judgment of textile machinery.

According to a trade journal article, the famous Springs Cotton Mills owner demands equipment that meets these requirements:

1—It must be modern.
2—It must be well made.
3—It must be the best available.

There never was a better time to invest in efficient equipment. If you would like to own the finest embossers or calenders in the industry, write or call an Appleton representative today. He will gladly analyze your needs, *without obligation.*

APPLETON MACHINE COMPANY
APPLETON WISCONSIN

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ADDRESS
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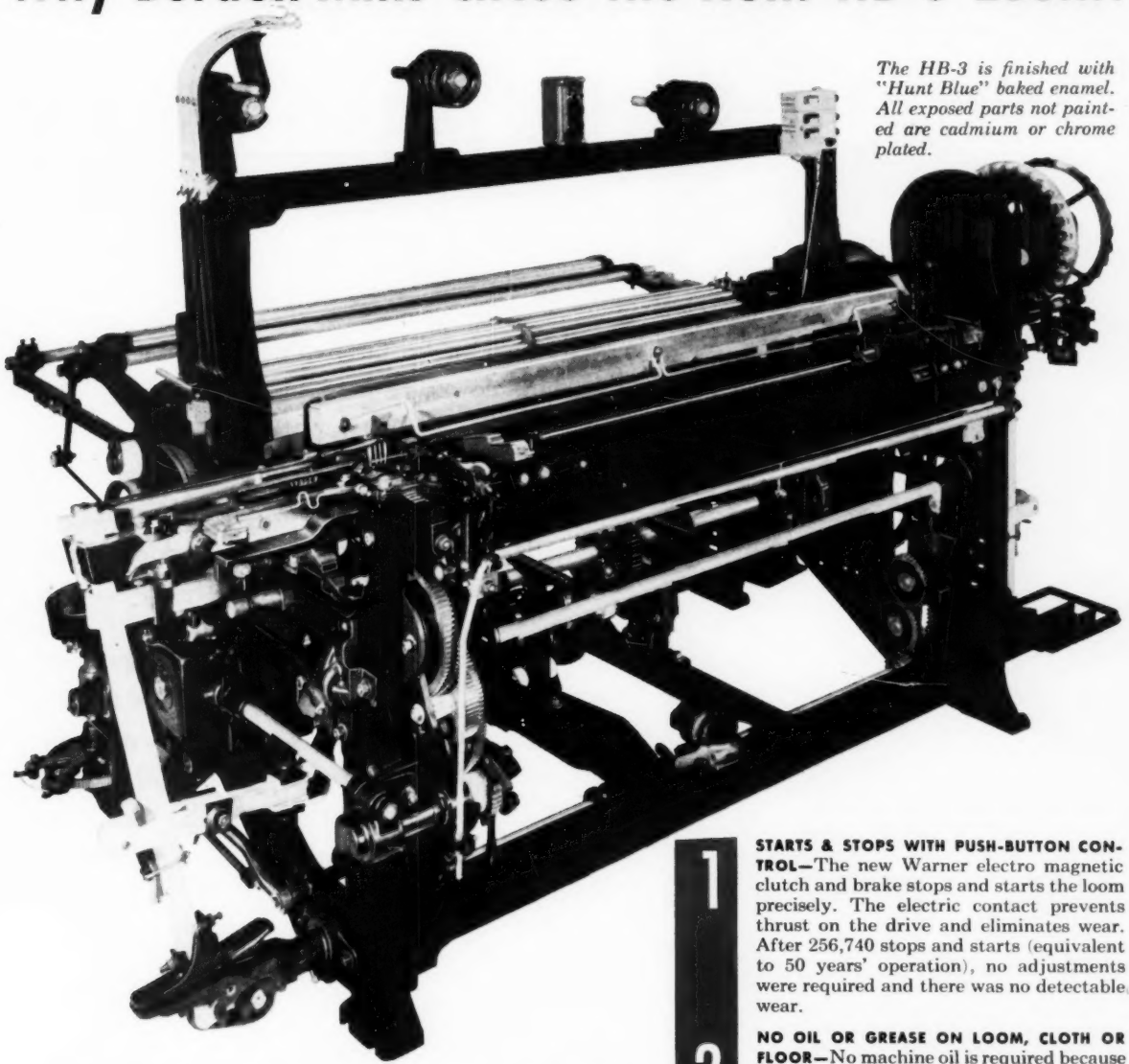
Why Borden Mills Chose the Hunt HB-3 Loom!



The HB-3 is finished with "Hunt Blue" baked enamel. All exposed parts not painted are cadmium or chrome plated.

The new HB-3 Loom, conceived and developed by Borden Mills and Hunt Loom & Machine Works, Inc., has 4 main features that are the main reasons why Borden picked the Hunt HB-3.

1 **STARTS & STOPS WITH PUSH-BUTTON CONTROL**—The new Warner electro magnetic clutch and brake stops and starts the loom precisely. The electric contact prevents thrust on the drive and eliminates wear. After 256,740 stops and starts (equivalent to 50 years' operation), no adjustments were required and there was no detectable wear.

2 **NO OIL OR GREASE ON LOOM, CLOTH OR FLOOR**—No machine oil is required because of oil impregnated bushings and nylon gears against metal gears. Sealed bearings require only a once-a-year greasing. Results are reduced seconds, because of no grease on cloth, in addition to time saving from oiling and greasing loom.

3 **70% LESS REPLACEMENT PARTS**—There are 55 less parts on the HB-3 Loom than on other standard models. This fact, plus the reduced wear from nylon gears against metal gears, reduce replacement parts by 70%.

4 **EASE AND COMFORT FOR EMPLOYEES**—The weaver's physical labor is lowered because of push-button control. The proper humidity pulled through the warp yarn into a floor duct practically eliminates lint and dirt, making the weave room as clean and healthy as the most modern office.

Write, wire or telephone Hunt today for more details on the new Hunt HB-3 loom.

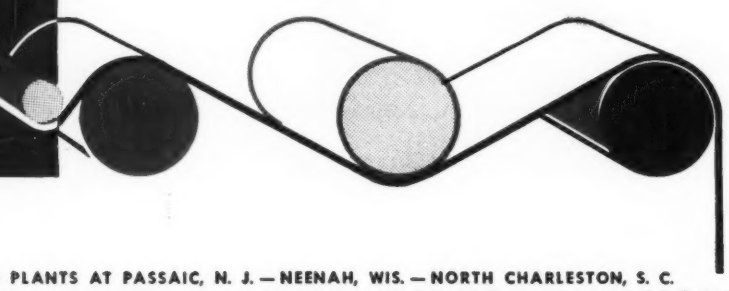
HUNT LOOM & MACHINE WORKS, INC.
200 ACADEMY ST. • GREENVILLE, S.C.

LOOMS & LOOM PARTS • SPREADERS • MOTOR DRIVES
HYDRAULIC CRANKSHAFT PRESSES • SIZE PUMPS

you get more use per dollar with **MANHATTAN** *rubber covered rolls*

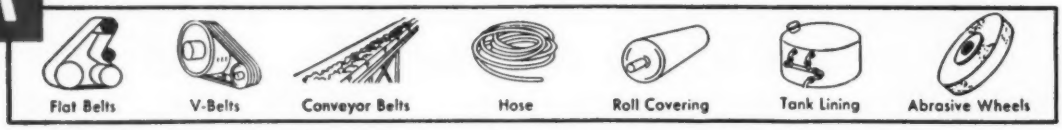
Manhattan Rubber Covered Rolls last longer, reduce machine downtime for replacement, and give you "More Use per Dollar." Manhattan roll covering specialists have developed an inseparable bond of rubber to metal core and a rubber covering that virtually eliminates troubles due to cracking, hardening or corrugating.

You get density custom-tailored to your specific requirements . . . density that stays like new for long, steady production runs. Modern precision roll grinding facilities control accuracy of dimension within .002", giving you "More Use per Dollar" in uniform, trouble-free production quality. Talk it over with the R/M roll specialist.



ROLL COVERING PLANTS AT PASSAIC, N. J. — NEENAH, WIS. — NORTH CHARLESTON, S. C.
MANHATTAN RUBBER DIVISION — PASSAIC, NEW JERSEY

RAYBESTOS - MANHATTAN, INC.



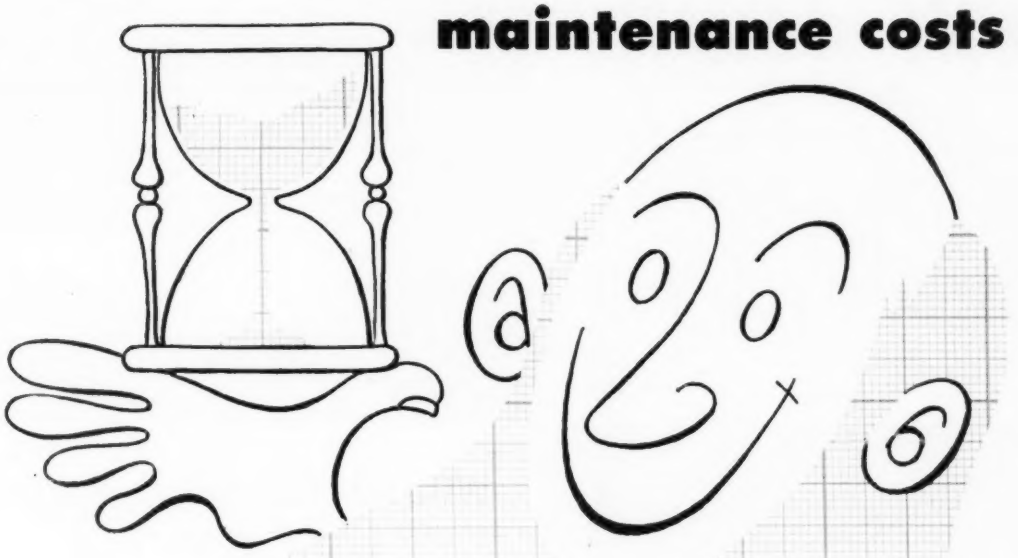
Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings
Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Bowling Balls

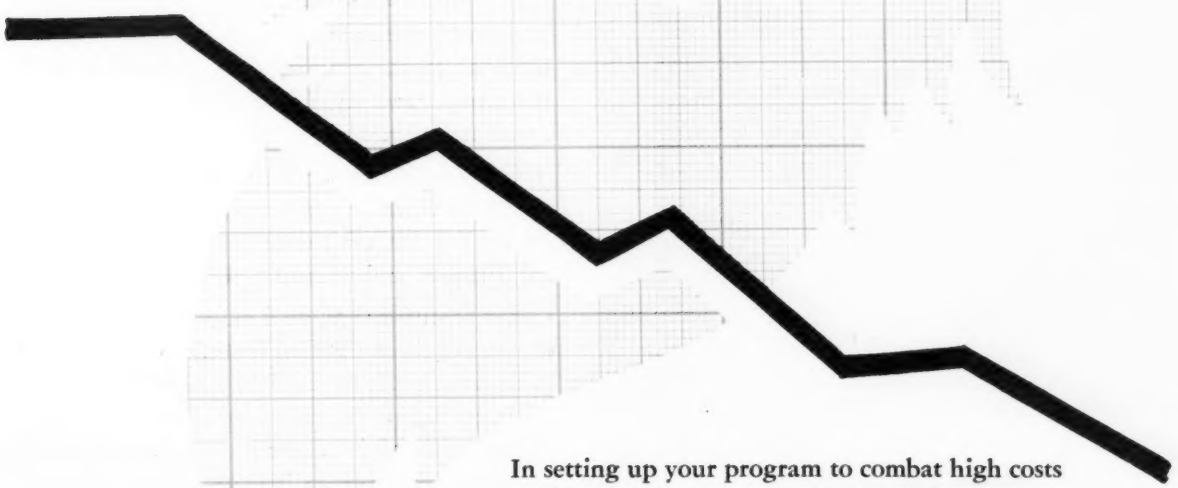
RM 410

For more information, write direct or use Reader Service post card.

time to trim

maintenance costs





In setting up your program to combat high costs during the new year, perhaps maintenance expense offers an opportunity for important dollar savings. It's a controllable expense—and one that can often be sharply reduced through improved lubrication.

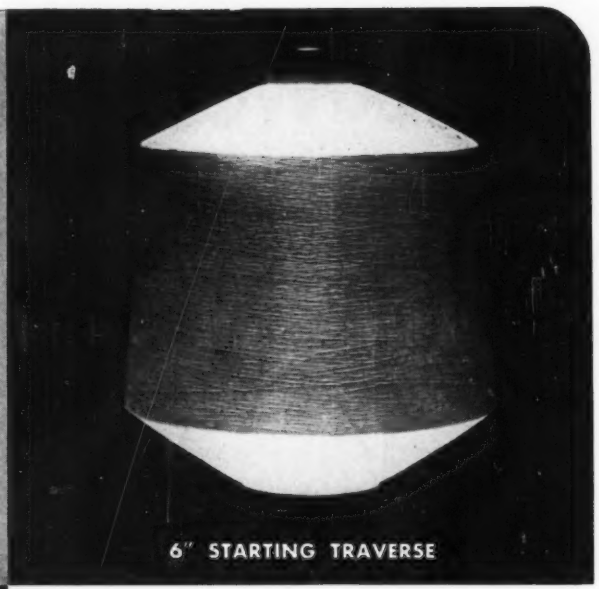
If you haven't analyzed this important phase of maintenance recently, we suggest that you talk to a Gulf Sales Engineer. He will make some worth-while suggestions that will help you reduce costs and improve the performance of your equipment.

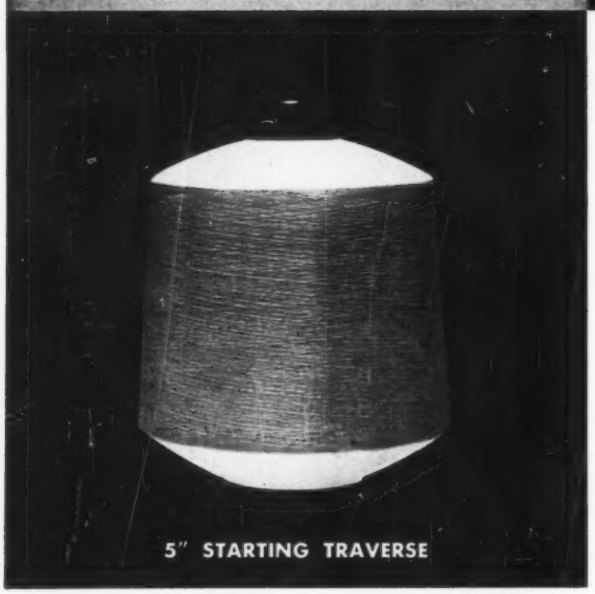
GULF SERVES INDUSTRY

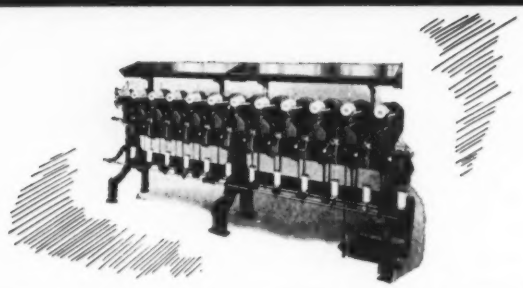
GULF OIL CORPORATION · GULF REFINING COMPANY
PITTSBURGH 30, PA.

PHONITE P-I

THE LONG AND THE SHORT OF IT







WOUND ON SAME MACHINE WITH SAME CAM

WITH PINEAPPLE CONE ATTACHMENT

It's the "long" of it, but not quite the "short", for a 4" starting traverse is obtainable with the same cam (5"), if only small diameter cones are required.

The Foster Model 75 is also flexible as to cone densities obtainable—anything from 40 to 70 by Durometer reading, simply by adjusting tension and pressure devices.

Other features include a slow starting device to prevent yarn strain — total enclosure of lubricated parts to prevent yarn soilage—and ball bearings on spindle and drive shaft. This standard Model 75 cone also has a convex base which prevents "nip-i-tis" and sluffing.

Send for Bulletin A-92

FOSTER MACHINE CO.

WESTFIELD, MASSACHUSETTS

SOUTHERN OFFICE—JOHNSTON BLDG., CHARLOTTE, N. C.
CANADIAN REPRESENTATIVE—ROSS WHITEHEAD & CO., LTD., 1475 MOUNTAIN ST., MONTREAL, QUEBEC AND 35-37 KING ST., W., TORONTO
EUROPEAN REPRESENTATIVE: MUSCHAMP ENGINEERS LTD., ASHTON-UNDER-LYNE, ENGLAND

FOSTER MODEL 75

FOR WINDING NYLON, RAYON, SILK AND COTTON THREAD YARNS

RHONITE R-I

GIVES STABILITY AGAINST SHRINKAGE IN A WIDE RANGE OF FINISHES

Dimensional stability against shrinkage is a characteristic of modern drapery fabrics finished with the washfast resin, RHONITE R-1.

The product of years of textile chemical research, RHONITE R-1 gives cotton and other textiles a stability that permits frequent washings without shrinkage or loss of their like-new appearance.

RHONITE R-1 produces a lasting beauty in all types of fabrics—plain, calendered or embossed, makes them wrinkle-and-shrinkage-resistant, without harshness or stiffness.

TEXTILE CHEMICALS

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

RHONITE is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries.

Write or call for complete information about RHONITE R-1—one of the quality chemicals for textile finishing made by Rohm & Haas Company.

YOUR JOB IS HARDER...

But Nopco can help you find the right sizing materials for Dacron, nylon, viscose and acetate rayons

Miranda Aurantia has a far easier task than you textile men. He has only one fiber to "size." You have to choose the size that will give you the best possible results with a myriad of the newer man-made fibers—not to mention the conventional types.

There is one sure source you can count on to help you always find "the right size". The chemists at Nopco set out to find the best sizing materials—or combinations of materials—for each of the modern fibers even before the fibers themselves were widely accepted. The sizes and additives suggested below have won high praise from every textile man who has tried them.

*Reg. U. S. Pat. Off.

†"Dacron" is a registered trade-mark of E. I. DuPont de Nemours & Co., Inc.

No general formula will serve every mill, of course; there are too many variables. Be sure to give us all the technical data you have when asking for a recommendation. The Nopco Specialists will work closely with you to help you bring out the best in your fabrics.

FOR DACRON†—NOPCOSIZE D

Easily prepared • Non-Foaming • Excellent solution storage life • No sticking on dry cans • Good bonding • No shedding • Non-tacky, non-gummy under high r.h. conditions • High loom efficiency.

FOR NYLON—NOPCOSIZE N

The only PAA size which gives a pliable film. Never gets brittle. Internally plasticized—allows a greater depth of size protection without causing tear drop in fabrics. Fabrics scour out to the cleanest goods yet obtained.

FOR VISCOSE RAYON—NOPCO 1111

A warp size softener, incorporated in the warp size formula—prevents tear drops.

FOR ACETATE RAYON—NOPCO 1111 AND 1440

For greater loom efficiency and increased production, minimum shedding, add both a softener (Nopco 1111) and a penetrant (Nopco 1440) to your regular sizing material.

NOPCO

Chemical Company, Harrison, N. J.

Boston • Chicago • Cedartown, Ga. • Richmond, Calif. • London, Ont.

New!

VARY-TALLY

Multiple-Unit Reset Counter

DESIGNED TO COUNT ANYTHING COUNTABLE

this new Vary-Tally can be supplied in any combination up to 6 banks high, 12 units wide, with the counting units arranged compactly on stands in tiers. Now check these special features of Veeder-Root design and construction:

- Easily Readable from any Angle . . . Bold Figures Always Centered in Window . . . No Glare . . . Figures not Covered by Fingers in Operation
- Easily Portable, yet Ruggedly Built for Long Wear
- Separate Counting Units Can be Rotated like Tires on a Car, to Distribute Wear Evenly
- All Parts Corrosion-Resistant
- Working Parts of Hardened Steel
- Operation Not Affected by Extreme Heat or Cold
- Individual Tag Above Each Counter-Window — Not Strip Tabs
- Veeder-Root Quality in Every Part

Now what's on *your* mind, that Vary-Tally can help you count? Write for news sheet and prices.

"The Name that Counts"

VEEDER-ROOT INC.

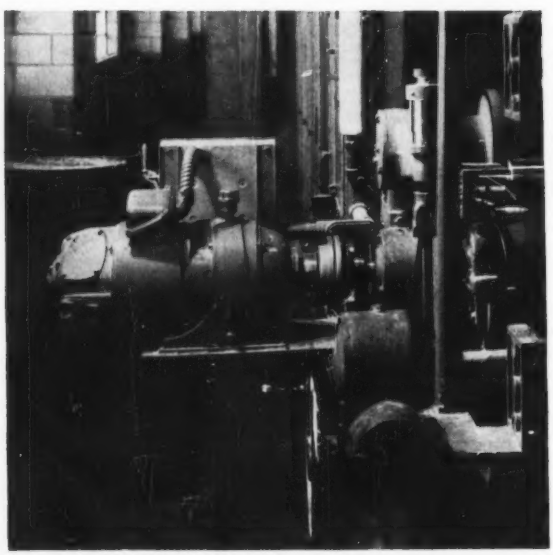
GREENVILLE, SOUTH CAROLINA
Box 297, Tel. Greenville 3-1371

HARTFORD 2, CONNECTICUT
Tel. Hartford 7-7201

ENGINEERING REPORTS:

EASY INSTALLATION, SIMPLE MAINTENANCE are features of this multiple-motor dyeing range at Grace Bleachery. This construction view shows several of the new three-piece G-E gear-motors being positioned. Although G-E drives such as this will operate for a long time with only routine maintenance, motors may be removed without disengaging the gears.

G-E Packaged Range Drive steps up



EASY-TO-MAINTAIN, G-E three-piece gear-motor runs this starching operation on a plisse range. This motor is only one of the many types that G.E. manufactures for the textile industry. Others include: totally-enclosed, ball-bearing loom motors; open, lint-proof motors; vertical motors for twisters and many others to meet your special requirements.

Compact drive gives Springs Cotton Mills' Grace Bleachery high speed finishing

Washing, drying, bleaching, mercerizing, dyeing—whatever your range operation may be—the General Electric packaged range drive can give you higher production per man-hour with lower maintenance costs.

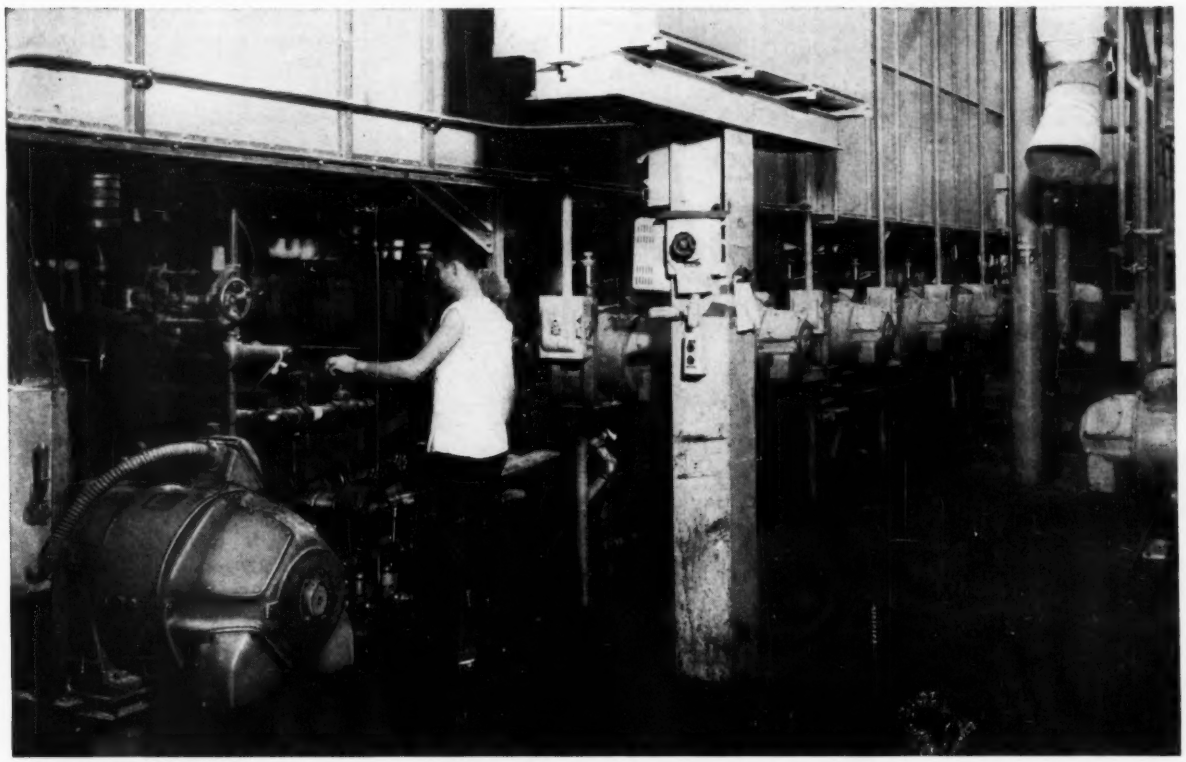
Efficient co-ordination of the drive elements through centralized control is one of the factors making this increased output possible by providing accurate control of cloth tension at all operating speeds. This assures you maximum cloth uniformity with minimum supervision and thus with lower costs.

ONLY THREE STANDARD COMPONENTS make up the G-E adjustable-voltage drive system: the operator's finger-tip control station which can be installed in any convenient location; three-piece range-driving motors and their associated rheostats; and the packaged speed variator unit, containing motor-generator set and exciter, which can be located anywhere to conserve valuable range space.

YOU CAN CUT RANGE COSTS with the easy-to-maintain G-E three-piece gear-motors. They need no special mounting and may be easily removed for servicing without disconnecting the gears or removing the motor base from the foundation. Along with easy maintenance, sturdiness and smooth operation combine to assure you long life for the motor itself.

GREENVILLE, SOUTH CAROLINA
Box 297, Tel. Greenville 3-1371

HARTFORD 2, CONNECTICUT
Tel. Hartford 7-7201



HIGH FINISHING OUTPUT of Spring Cotton Mills' Grace Bleachery is speeded by three-piece G-E gear-motors. Control system with master rheostat (on center post) provides finger-tip control of entire installation. Packaged power unit was easily located out of the range area. G.E. co-ordinated manufacture and delivery of nearly all drive equipment for this mill.

cloth-finishing output per man-hour

Check the advantages which the G-E packaged range drive can offer you:

SIMPLE TENSION CONTROL, accomplished with inexpensive compensating gates or other co-ordinating equipment

WIDE SPEED RANGES, available up to 8–1 without special equipment

CENTRALIZED CONTROL of range speed from a single location

SMOOTH, STEPLESS ACCELERATION AND DECELERATION with close speed control

EASY MAINTENANCE—motors may be removed for servicing without disengaging drive gears

DYNAMIC BRAKING for sudden stops and regenerative braking for controlled deceleration

YOU CAN PROFIT from other mills' experience. Mail coupon for additional details on G-E range drives or contact your nearest General Electric Apparatus Sales Office.

Mail this coupon for help in solving your range drive problems!

General Electric Co., Section A654-33
Schenectady 5, N. Y.

Please send me without obligation your Bulletin GEA-5010 which gives the latest developments in G-E range drives.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

Engineered Electrical Equipment for Textile Mills

GENERAL ELECTRIC

...with TYCOL lubricants on hand!

Take textile machinery, for example. There's a Tycol lubricant for any application you name: For instance, what about high speed spindles? . . . Tycol Alweave oils reduce thread breakage, hold spindle drag and bolster losses to a minimum. Loom gears? . . . Tycol Amortac oils have the necessary "stringiness" to keep them from dripping from exposed gears. Top rolls? . . . Use Tycol Akup or Ambrokup grease. You always get top performance with Tycol lubricants. Why? . . . Because each Tycol grease and oil is manufactured from high quality base stocks and *tailored* for a specific application. Get the full story of the entire Tycol line from your local Tide Water Associated office today!

Over 300 Tycol industrial lubricants are at your disposal . . . engineered to fit the job!

REFINERS AND MARKETERS OF VEEDOL . . . THE WORLD'S MOST FAMOUS MOTOR OIL

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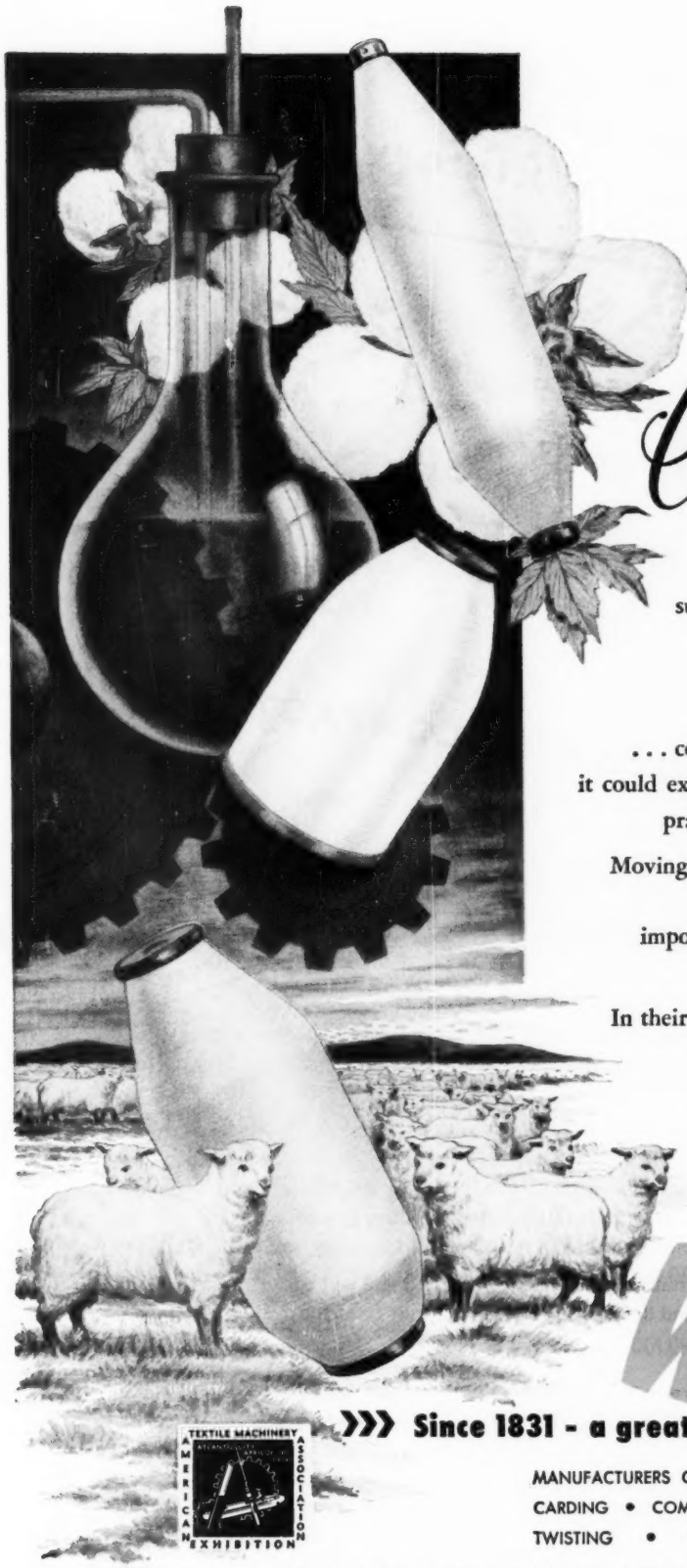
TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE · NEW YORK 4, N.Y.



Confidence...

SINCE 1831, Whitin has been a major supplier of machinery for the textile industry, building a relationship based on confidence . . . confidence on Whitin's part, in the strength and growth of the industry . . . confidence on industry's part, that from Whitin it could expect leadership and the best in machinery for practically every fiber that man makes into yarn.

Moving forward with this same confidence, Whitin is developing several new machine models and important design improvements, to serve the textile industry and advance its technology.

In their great and expanding role as producers of one of mankind's basic needs, every mill in the textile industry can still look to Whitin, as they have for 120 years, for modern, efficient, profit-making machinery.

Whitin

»» Since 1831 - a great name on textile machinery ««

MANUFACTURERS OF MACHINERY FOR: OPENING • PICKING
CARDING • COMBING • DRAWING • ROVING • SPINNING
TWISTING • WINDING, AND FOR MANY OTHER PROCESSES

WHITIN MACHINE WORKS · WHITINSVILLE, MASS

CHARLOTTE, N.C. • ATLANTA, GA. • SPARTANBURG, S.C. • DEXTER, ME.

The name is news...
but the fiber is history!

COURTAULDS' Coloray

PROVEN COLORFASTNESS IN

With Coloray, Courtaulds has achieved the highest degree of color security possible with modern chemistry. This is no experiment. This is color permanence proven over the years (since '38) . . . on a vast scale (British production is now 25 million pounds a year) . . . and in all kinds of products (dresses to draperies to men's shirts to convertible car tops).

Not color added . . . or color applied . . . but color that permeates the original viscose solution and is actually imprisoned in the fiber. *Captive Color—Can't Escape!* Coloray is fast to sunlight, washing, perspiration, dry cleaning, crocking. It is not affected by standard finishing processes. It outperforms traditionally dyed colors, not only in colorfastness, but in brilliance, versatility and economy.

And now — with the resources of Courtaulds' new American plant, there will be sufficient Coloray in a wide range of shades, staple lengths and deniers to brighten the whole future of rayon — and rayon blends — in this country!

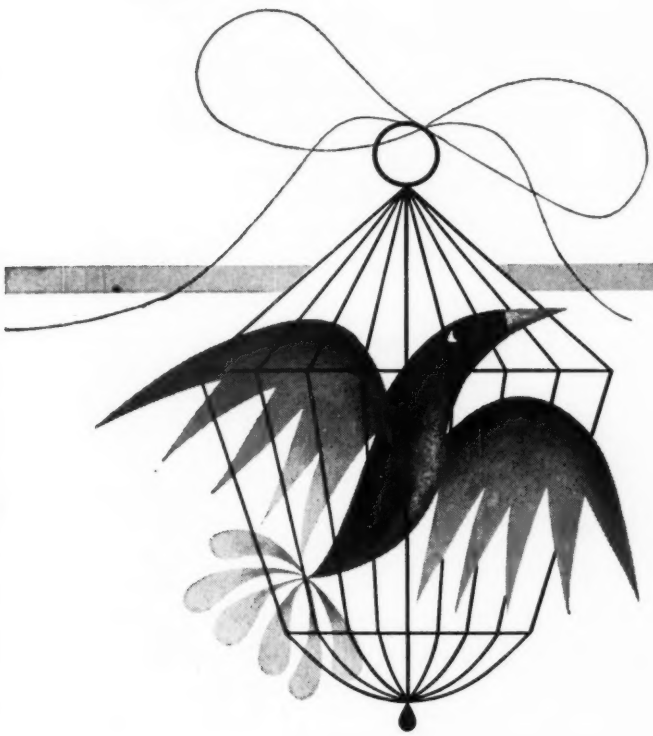
Courtaulds — Over 150 Years in Textiles... 50 Years in Man-Made Fibers

Courtaulds, Ltd., of England, developed the viscose process in 1904, established the rayon industries in the U.S.A. and Canada, and fifteen years ago originated solution-dyeing. Altogether, the Courtaulds organization operates in nine countries of the world! American Courtaulds is now delivering Coloray at lower cost and in greater quantity than ever before.

COURTAULDS, INC.

For more information, write direct or use Reader Service post card.

SOLUTION-DYED RAYON STAPLE



COLORAY means maximum COLORFASTNESS plus

COLOR UNIFORMITY
— end to end, piece to piece, no streaking or shading

COLOR DEPTH
— unusual bloom, richer look

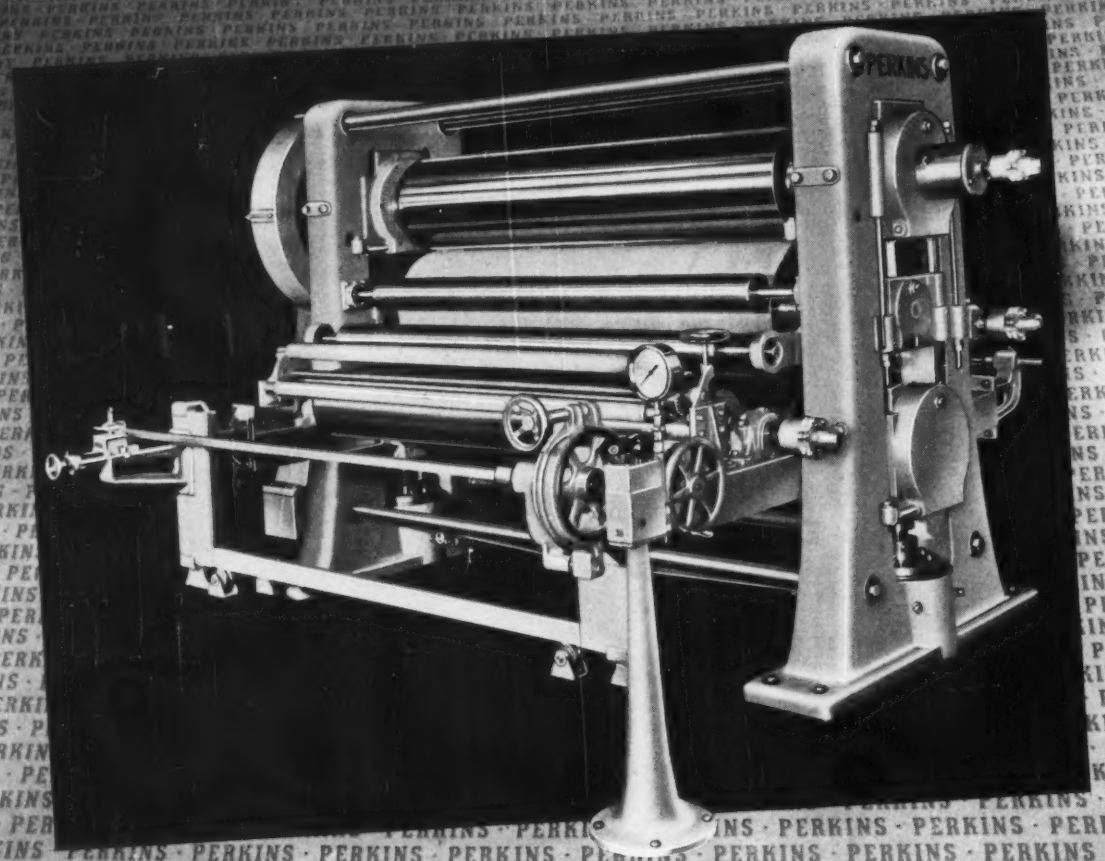
COLOR VERSATILITY
— unlimited blending possibilities

COLOR ECONOMY
— great savings over vat-dyed colors, low waste factor in processing

COLOR WITHOUT LOSS OF YARN QUALITY
— finer hand in the finished product, too

first name in man-made fibers, first name in solution-dyeing • **600 Fifth Avenue, New York 20, N. Y.**

For more information, write direct or use Reader Service post card.



PERKINS POINTS WITH PRIDE

to this modern three-roll 83" face 60-ton Hydraulic Rolling Calender. Top and bottom rolls, chilled iron. Intermediate roll, cotton. This high production calender is equipped with variable speed drive, pre-heating drum, cooling drum, three-bar tension group and a let-off which is adjustable laterally and horizontally.

B. F. PERKINS & SON, Inc.

HOLYOKE, MASS., U.S.A.

LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

For more information, write direct or use Reader Service post card.

They're Smooth — Lightweight — Durable!

IDEAL FOR TEXTILE MATERIALS HANDLING

Spaulding Vulcanized Fibre Receptacles meet every requirement for handling textile materials. They're ***tough*** with high resistance to impact and abrasion. They're smooth. Materials can't catch on them.

They're ***lightweight*** for welcome ease in moving about. Streamlined design, fine fabrication and freedom from damage by oils, greases or moisture are other features that make them favorites in the textile field. Available as boxes, barrels, baskets, cans and trucks in a wide range of sizes.

Spaulding

FIBRE COMPANY, INC., TONAWANDA, N. Y.

SPAULDING BRANCH SALES OFFICES

BOSTON 16, MASS.
585 Boylston St.

BRIDGEPORT 5, CONN.
2889 Fairfield Ave.

CHICAGO 25, ILL.
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CHICAGO 38, ILL.
5604 West 63rd St.

CLEVELAND 14, OHIO
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CLEVELAND 16, OHIO
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DAYTON 2, OHIO
136 South Ludlow St.

DETROIT 1, MICH.
4612 Woodward Ave.

FORT WAYNE 6, IND.
2301 Fairfield Ave.

LANSING 10, MICH.
2021 South Cedar St.

LONG ISLAND, N. Y.
90-34 Jamaica Ave.
Woodhaven 21, L. I., N. Y.

MILWAUKEE 8, WIS.
3329 West Vliet St.

NEW YORK 55, N. Y.
384 East 149th St.

NEWARK 2, N. J.
965 Broad St.

PHILADELPHIA, PA.
702 Federal St.
Camden 3, N. J.

ST. LOUIS 5, MO.
34 North Brentwood Blvd.

TONAWANDA, N. Y.
310 Wheeler St.

LOS ANGELES 15, CALIF.
C. D. LaMoree
1325 San Julian St.

BERKELEY 10, CALIF.
C. D. LaMoree
2221 Fourth St.

TORONTO 18, ONT., CANADA
A. A. Andersen & Co.
P.O. Box 92

Mail Coupon For Full Information

SPAULDING FIBRE CO., INC.
TONAWANDA, NEW YORK

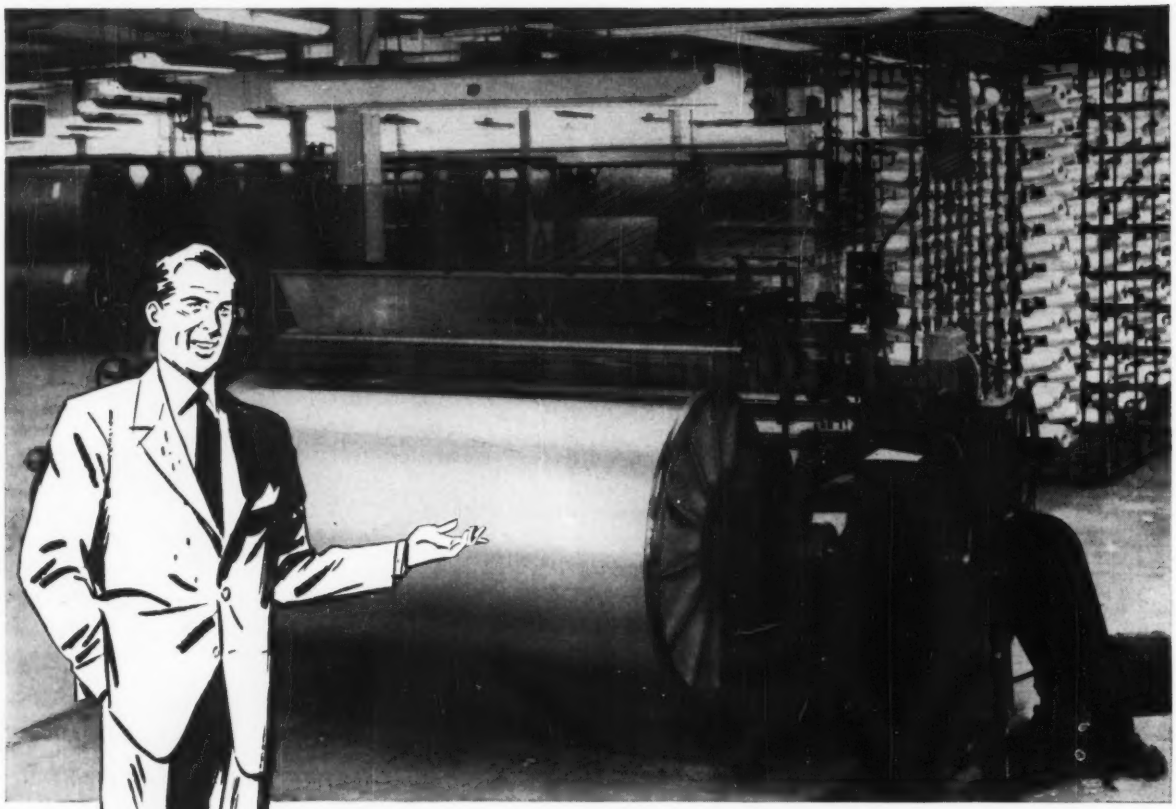
Please send me your complete catalog of Spaulding Fibre Receptacles.

Name _____

Company _____

Address _____

City _____ *Zone* _____ *State* _____



400,000

Aluminum Warp Beams now in use...

AND NOT ONE FAILURE FROM DEFLECTION OR CRUSHING!

First introduced in 1938, aluminum warp beams number over 400,000 now in service! And, in all these years, *there has never been a single failure of an aluminum beam from deflection or crushing!*

Clean, strong, lightweight aluminum warp beams increase machine speeds—decrease handling and stacking effort. Because they are metal, *they will not splinter!* In addition, they will not groove under the tremendous winding pressures of synthetic yarns. Beams of light-but-strong Alcoa® Aluminum Extrusions and Castings or Forgings are available from many of the country's leading beam manufacturers—including:

- **HAYES INDUSTRIES, INC.**
- **HUBBARD SPOOL COMPANY**
- **MILTON MACHINE WORKS, INC.**
- **BRIGGS-SCHAFFNER**

For additional information on lightweight aluminum beams—made from a specially developed Alcoa Aluminum Alloy, write: Aluminum Company of America, 1944-A Alcoa Building, Pittsburgh 19, Penna.

Alcoa brings the world to your armchair with "SEE IT NOW" featuring Edward R. Murrow, Tuesday evenings on most CBS-TV stations.

Alcoa Aluminum

ALUMINUM COMPANY OF AMERICA

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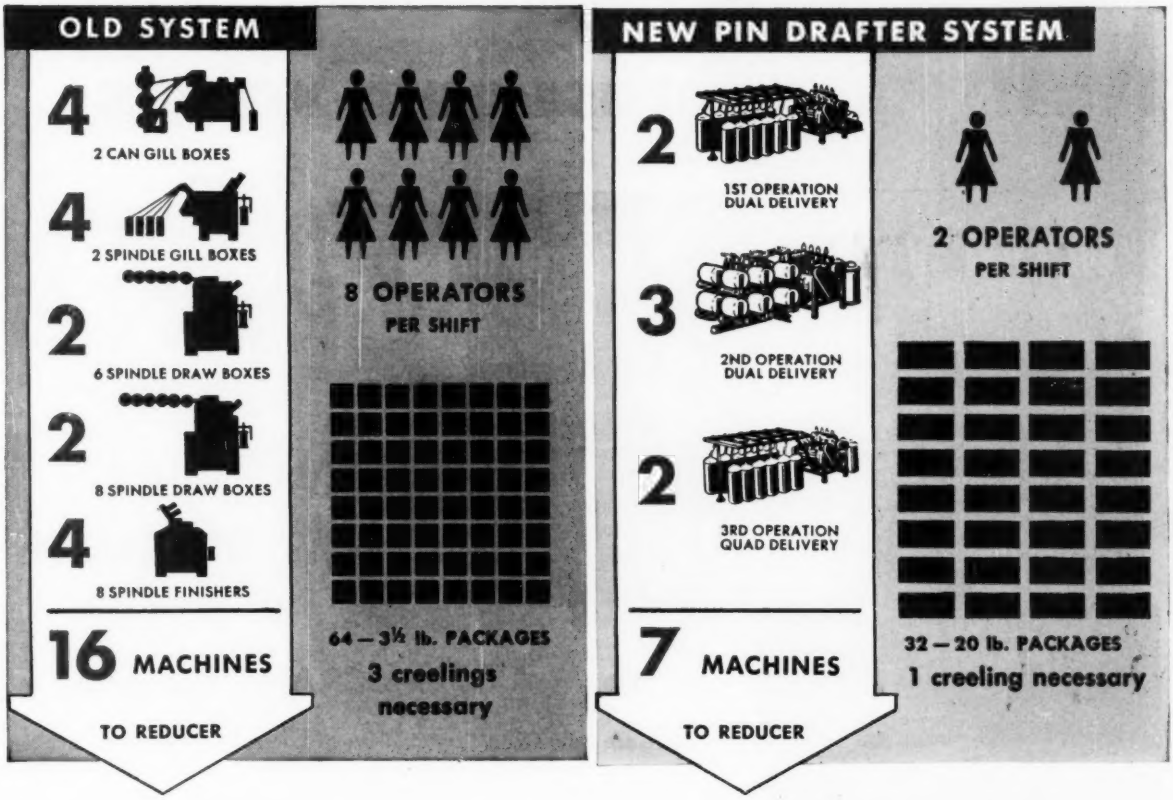
Which system would you choose?



PATON MANUFACTURING COMPANY, LTD. of Sherbrooke, Quebec, chose the Pin Drafter system. They knew the importance of cutting costs in the highly competitive market for their worsted suiting fabrics. And they saw the tremendous cost savings they could realize with the adoption of the Pin Drafter method for the early stages of yarn preparation. Besides maintaining their high quality standards, here is the record of the Pin Drafter system at the Paton mill:

- **7 machines replaced 16 machines.**
- **2 operators replaced 8 operators on each of two shifts. Operators prefer the Warner & Swaseys—there's a waiting list to get on these machines.**
- **Over-all waste reduced 50%. Waste practically eliminated at drawing—drastically cut at reducer.**
- **Creeling at reducer cut 6 to 1. Instead of creeling sixty-four 3½ pound packages three times, operators now creel only thirty-two 20 pound packages.**
- **Cost of repair parts for the Warner & Swaseys is extremely low.**

Direct savings from the Pin Drafters has enabled Paton to cut their manufacturing costs substantially. The Warner & Swaseys' outstanding record was summed up by Mr. R. Neil, Plant Manager: *"The installation could have paid for itself in 1½ to 2 years if the savings were retained instead of passing them along to the customers!"*

Two quad delivery Warner & Swasey Pin Drafters in operation at Paton Mfg. Company, Sherbrooke, Quebec.

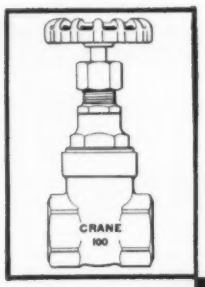
SALES OFFICES

Main Office and Factory: 5701 Carnegie Ave., Cleveland 3, Ohio
61 Rivulet St., North Uxbridge, Mass. 6910 Market St., Philadelphia, Pa.
Candler Building, Atlanta, Ga. 1820 Browning Ave., Charlotte, N. C.

TEXTILE MACHINERY DIVISION

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

NEW* brass gate valves by CRANE



No. 410, 100-Pound

No. 438, 125-Pound

No. 437, 150-Pound

* NEW SHAPE... NEW STRENGTH

for 3 All-Time CRANE favorites

Here are valves that didn't have to be changed . . . because each has long been the best in its class. But Crane found ways of improvement to give you an even better buy for your brass valve dollars.

For example—here is greater strength, greater rigidity, made possible by the new cylindrical upper body . . . the same basic shape as high-pressure steel valves. Here, too, is an improved stuffing box that screws *into* the bonnet—also better stem support to assure truer alignment and minimize wear on the packing.

And not to be overlooked is their clean, modern appearance—a very desirable advantage for all of your "exposed" installations. Sizes ¼ to 3 in. Ask your Crane Representative all about this improved brass valve line next time he calls.

just off the press...
new four-page folder with complete facts including sizes, prices and dimensions. Send for yours today. Ask for Brass Valve Folder AD1944.

THE BETTER QUALITY...BIGGER VALUE LINE...IN BRASS, STEEL, IRON

CRANE VALVES

CRANE CO., *General Offices:* 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

VALVES · FITTINGS · PIPE · PLUMBING · HEATING

announcing the new synthetic

Coleman TRU-DRAFT COTS

A Specially Formulated Elastomer that:

- ✓ *virtually eliminates eyebrowing*
- ✓ *drafts superior yarn*
- ✓ *gives longer service between buffings*

Coleman's new TRU-DRAFT COTS are winning industry-wide praise for outstanding performance. Made from a newly developed synthetic formula, these cots combat eyebrowing so successfully that many users are drafting the highest quality yarns at the lowest cost ever!

But that is only part of the story. Let us show you in your plant the results that can be obtained.

Specify TRU-DRAFT on your next cot order. The savings and results will amaze you.

TRU-DRAFT COTS are manufactured by B. F. Goodrich Co. exclusively for

COLEMAN COMPANY, INC.

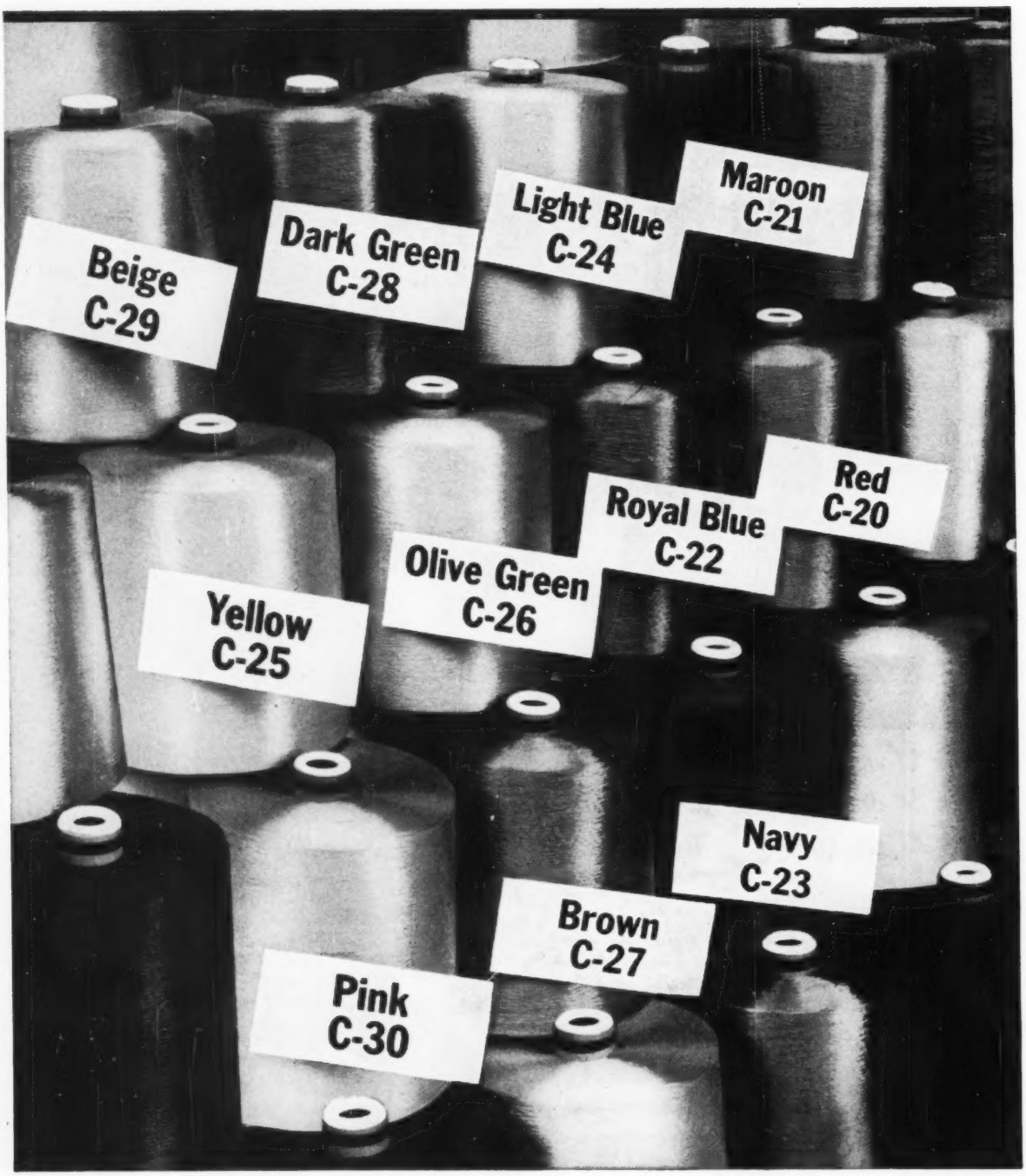
GREENVILLE, SOUTH CAROLINA

Represented by:

Bill Boger, Charlotte, N. C. Tel. 4-5563

Ed White, Greensboro, N. C. Tel. 4-7218

ANNOUNCING A NEW RANGE OF IN CELAPERM* ACETATE!



For more information, write direct or use Reader Service post card.

FASHION-APPROVED COLORS

Celanese uses new pigments to achieve new colors—new fastness standards.

In the past few seasons Celanese* Celaperm yarn has helped to revolutionize old concepts of color fastness in acetate.

But Celanese textile research continued to seek for still more serviceable colors; for universally usable shades. Celanese now announces another giant stride forward in color pigmented acetate.

In addition to developing a new group of colors—selected with infinite care and in cooperation with a host of color experts—*Celanese has developed a group of colors that are still faster than those previously available.*

Eight shades which have proved to be of fundamental fashion importance are being continued. Eleven new colors in Celaperm present the most exciting single opportunity for new textile styling and promotion. This range has been developed with ALL suitable end-markets in mind.

Celanese is ready to show what has and can be done with Celaperm's infinite combinations —producing new pattern and texture with color and color, color and white, color and black.

Contact your nearest Celanese sales office for information about these new colors. Celanese Corporation of America, N. Y. 16; Boston, Mass.; Camden, N. J.; Charlotte, N. C.

The following new colors are available for January-February delivery:

Red C-20
Maroon C-21
Navy C-23
Royal Blue C-22
Light Blue C-24
Olive Green C-26
Yellow C-25
Brown C-27
Pink C-30
Beige C-29
Dark Green C-28

The following continued colors are available for spot delivery:

Grey C-7
Blue N-957
Blue Green N-948
Yellow Green N-937
Grey N-935
Black 16
Navy N-944
Green C-3

All orders on these discontinued colors are subject to prior sale.

Red N-988
Red N-945
Blue N-383
Green N-974
Brown N-956
Navy C-10
Blue N-950
Yellow N-951

Celanese*

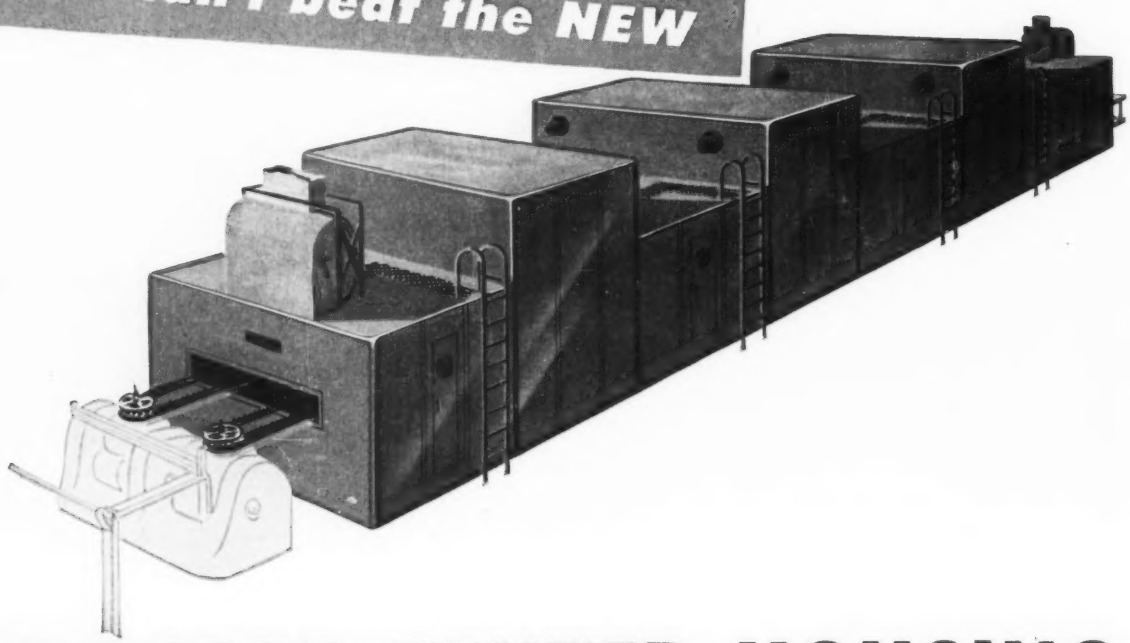
CELAPERM*

the acetate yarn with the "sealed-in" color

*Reg. U.S. Pat. Off.

FEATURE for FEATURE...

you can't beat the NEW



PROCTOR TENTER HOUSING

Check the completely redesigned Proctor Tenter Housing and you'll find many important features *never before furnished* in this type of machine.

UNIFORMITY—The air circulation system of this new tenter housing is arranged to absolutely assure a uniform distribution of air from center to side of the material.

FLEXIBILITY—Dampers regulate the volume of circulated air in addition to controlling the amount of air as required to individual top and bottom ducts. With these controls a complete range of fabrics may be handled.

PRODUCTION—The new Proctor Tenter Housing has the greatest drying capacity per foot of length ever offered to the textile industry . . . from 50% to 100% more drying capacity than conventional tenter housings.

ECONOMY—The operating cost including labor, power and all other costs is appreciably less per yard of cloth output. This saving can pay for the equipment in as little as two years.

NEW CONSTRUCTION—An entirely new panel construction results in a housing with a smooth exterior and interior.

ACCESSIBILITY—Wide, well placed doors provide ready access to the interior for cleaning and routine maintenance.

Checked feature for feature—you soon discover that you buy most per dollar invested when you buy PROCTOR. Write today for details.

PROCTOR & SCHWARTZ, INC., Philadelphia 20, Pa.

For more information, write direct or use Reader Service post card.

HERE hosiery at Berkshire Knitting Mills is checked carefully. Stainless Steel boxes at each examiner's right holds hosiery awaiting inspection. Small, curved Stainless tables in front of the examiners hold hosiery during inspection. At the examiner's left is the ring which holds the inspected hosiery bag, the counter lever and guard—all Stainless Steel. Inset gives a closer view of this equipment.

STAINLESS STEEL FLOOR trucks are used to transport nylon hose between departments at Berkshire Knitting Mills.

STAINLESS STEEL'S SMOOTH SURFACE

aids *"quality control"* at Berkshire Knitting Mills

THE sheer hosiery that women prefer today demands the most careful handling in the knitting mill. Many companies have found they can best protect the product—and reduce maintenance costs, too—through extensive use of Stainless Steel equipment.

Berkshire Knitting Mills, Wyomissing, Pa., one of the largest manufacturers of full-fashion nylon hosiery, takes advantage of the smooth, non-snagging surface of Stainless Steel in special equipment in the Knitting, Finishing and Inspection Departments.

Work tables at the knitting machines now have Stainless Steel tops. Material formerly used was susceptible to chipping and cracking, but since the Stainless tops have been in use the product is safe from damage.

At the Inspection stations, the holding box, work table, ring, counter lever and shield—all potential danger spots—are Stainless Steel. Not only is much of the danger of snagging eliminated, but maintenance costs are much lower than when these units had painted surfaces.

The floor trucks used to transport hosiery between departments are Stainless Steel. When wooden trucks were used, it took the constant attention of one or two men to keep them snag-free, but now these men can be used on other jobs around the plant.

Stainless Steel's smooth, non-snagging surface, by itself, will often justify the use of Stainless mill equipment—but you get far more. You get a material with superior resistance to corrosion, ease of cleaning, long life, no color carryover when used in dyeing, and many other advantages. Use it wherever you can, and be sure it's perfected, service-tested U·S·S Stainless Steel.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS USS PIPE · TUBES · WIRE · SPECIAL SECTIONS

UNITED STATES STEEL

Look at these features of the Model 604P5 Thermometer Controller

GOOD READABILITY:
indicates temperature on 4½" scale.

QUICK CONTROL CHECK:
readily visible red control pointer and black indicating pointer.

CONTROL AIR CHECK:
front-mounted gauge indicates air pressure to control valve.

VARIETY OF CONTROL:
direct or reverse acting pneumatic control —either on-off or proportional action.

SELECTION OF RANGES:
23 different temperature ranges, up to 1000°F., in Fahrenheit and Centigrade calibrations, for vapor and mercury bulb systems.

COMPACT DESIGN:
die cast aluminum case 11" x 11", 4" deep; gasketed black plastic cover; practically splashproof. Interchangeable flush or surface mounting on panels of any thickness.

SIMPLE SETTING:
external knob for adjusting control point.

A new, low-cost temperature controller *from Honeywell*

MANY processes which now use manual control can utilize the advantages of automatic operation at unusually low cost—by employing the new Brown Pneumatic Thermometer Controller.

For the scores of ovens, vats, dryers and similar equipment which need only temperature indication and relatively simple control, this new instrument affords excellent control performance. It's fast, accurate . . . and simple in design. It takes so little space that it can fit readily into existing equipment or on panels.

Instrument and thermal system are complete in one package. The set point is easily adjusted by means of an external knob. The selection of control actions, ranges and types of thermometer bulbs covers literally hundreds of control applications throughout industry.

In spite of its low price, this controller is a precision-built instrument which incorporates many of the long-lasting, high-quality components used in other Honeywell products. And it's backed by Honeywell's nationwide service organization, strategically located in more than 90 principal cities of the United States and Canada.

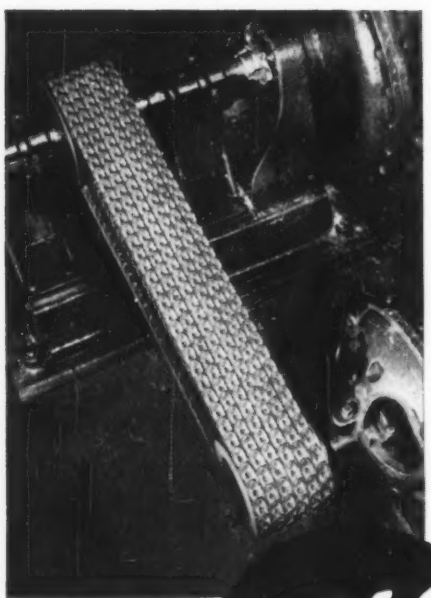
Our local sales engineer will be glad to discuss how this new controller can be applied to your own temperature problems. Call him today . . . he is as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, 4509, Wayne Ave., Philadelphia 44, Pa.

● **REFERENCE DATA: Write for your copy of new Bulletin 6401.**

MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS
First in Controls

"Yes, but what will it do for me?"



We'll answer your question by giving you a run-down of what we call the three "E's" of Veelos, the adjustable v-belt . . .

Ease of Installation—the link construction of Veelos makes it easy to install without re-setting the motor or tearing down outboard bearings. In many cases installation is completed in 50% to 90% *less time* than it would take to make an endless v-belt installation.

Efficiency of Operation—because individual Veelos v-belts can be adjusted for correct tension, matched sets can be kept matched; vibrationless, full power delivery is assured.

Economy of Inventory—just 4 reels of Veelos in the 0, A, B and C widths can replace up to 316 different sizes of endless v-belts. Of course, if your machines use only one or two widths of v-belt, you stock only those widths of Veelos. Inventory is simplified, costly belt deterioration is eliminated and you save valuable stockroom storage space.

Put these three "E's" of Veelos to the test in your plant, under your own operating conditions, and you'll find the answer to your question . . . standardize on Veelos and *save!*

VEELOS
THE LINK
V-BELT

VEELOS DATA BOOK—Here's the complete story on Veelos, the adjustable v-belt. Book gives detailed engineering data, is fully illustrated. Write for your copy today!

MANHEIM MANUFACTURING & BELTING COMPANY
611 Manbel Street, Manheim, Penna.

ADJUSTABLE TO ANY LENGTH • ADAPTABLE TO ANY DRIVE

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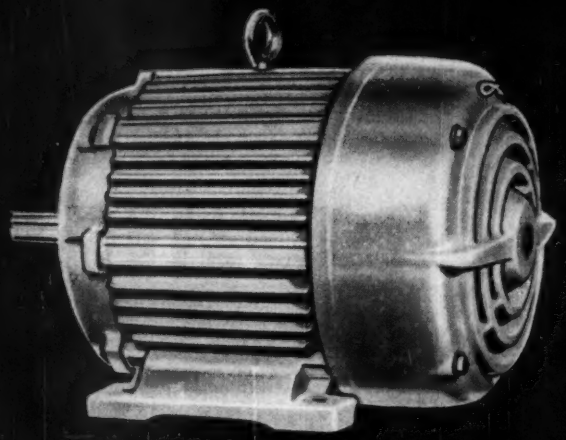


Here's new power
for all standard
and special
motor applications

The Louis Allis Co. proudly presents the NEW L.A. *Line of electric motors*

Upper: New L.A. Fan-cooled and Explosion-proof Motor

New L.A. Open, Drip-proof Motor

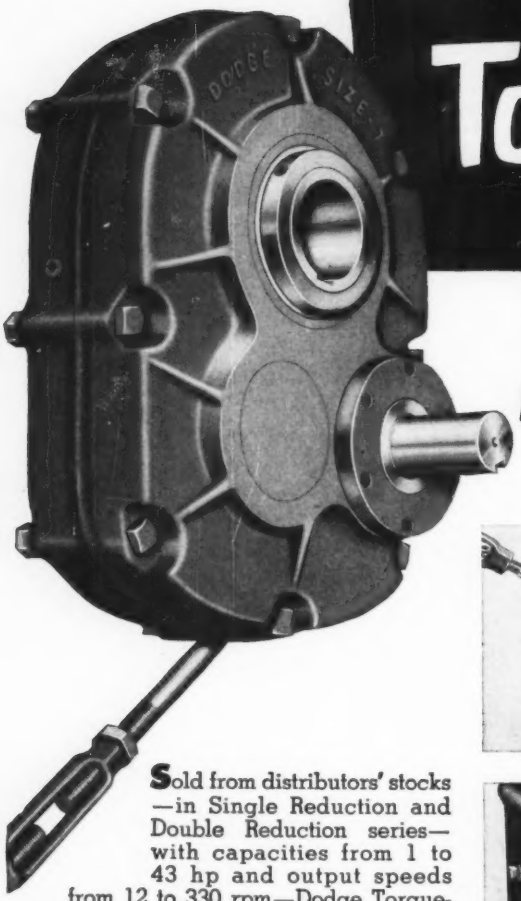
Here is complete utilization of more than 50 years of motor engineering and development—the new L.A. line of electric motors. More than just a "face-lifting" to meet the new NEMA standards, these motors are entirely new through and through—with such features as new modern styling . . . improved ventilation . . . greater motor protection . . . new conduit box arrangement . . . new bearing construction . . . and more versatile mounting.

Improvements in motor design, materials, and manufacturing methods make the new L.A. line possible. These motors pack more power in a smaller, lighter, more functional package. Yet they sacrifice none of the high Louis Allis standards of performance and liberal design.

Get the facts on the most modern motors available—the new L.A. line. Call in your nearby Louis Allis Sales Engineer today for the complete story.

Special Note *Louis Allis motors in old NEMA standard frame sizes will still be available if you require them for interchangeability or replacement.*

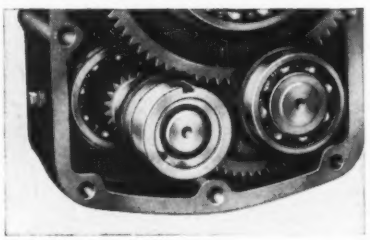
THE LOUIS ALLIS CO. • MILWAUKEE 7, WISCONSIN



Torque-Arm

The Most Complete Line of Shaft-Mounted Speed Reducers!

TRI-MATIC OVERLOAD RELEASE
Provides instant, positive protection for driven machines, motors and reducer itself. Automatically (1) loosens the belts, (2) cuts off power, (3) gives a warning.



TORQUE-ARM BACK STOP
Available from stock when required. Easily installed—sealed inside reducer housing. Simple, positive action prevents reversal.

Sold from distributors' stocks—in Single Reduction and Double Reduction series—with capacities from 1 to 43 hp and output speeds from 12 to 330 rpm—Dodge Torque-Arm is the new and modern idea in speed reducers.

No special engineering required. No foundation to provide. No flexible couplings. No sliding base. No lining up difficulties. No expensive installation. Stock Taper-Lock sheaves prescribed for each job to provide desired speeds. Application to other machines is practical and easy.

Unit is driven through any V-Belt Drive. Torque-Arm, fastened to any fixed object, anchors the reducer unit. Turnbuckle provides fast and accurate adjustment of belt tension.

Standardize on Torque-Arm, the speed reducer that saves you money.

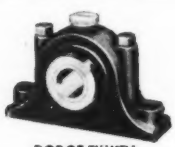
DODGE MANUFACTURING CORPORATION
1400 UNION STREET, MISHAWAKA, INDIANA

DODGE
of Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory-trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified telephone book.

ROLLING GRIP AND DIAMOND D CLUTCHES

TAPER-LOCK SHEAVES, SEALED LIFE V-BELTS



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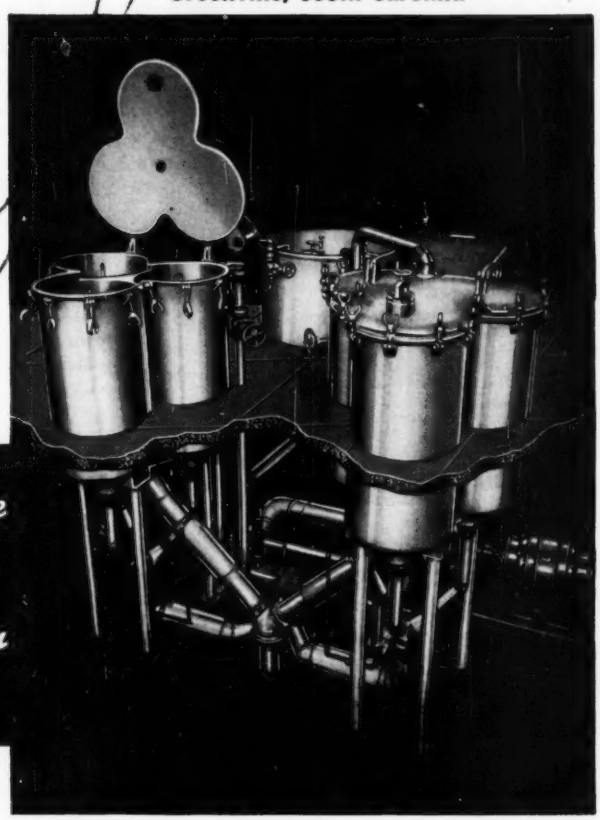

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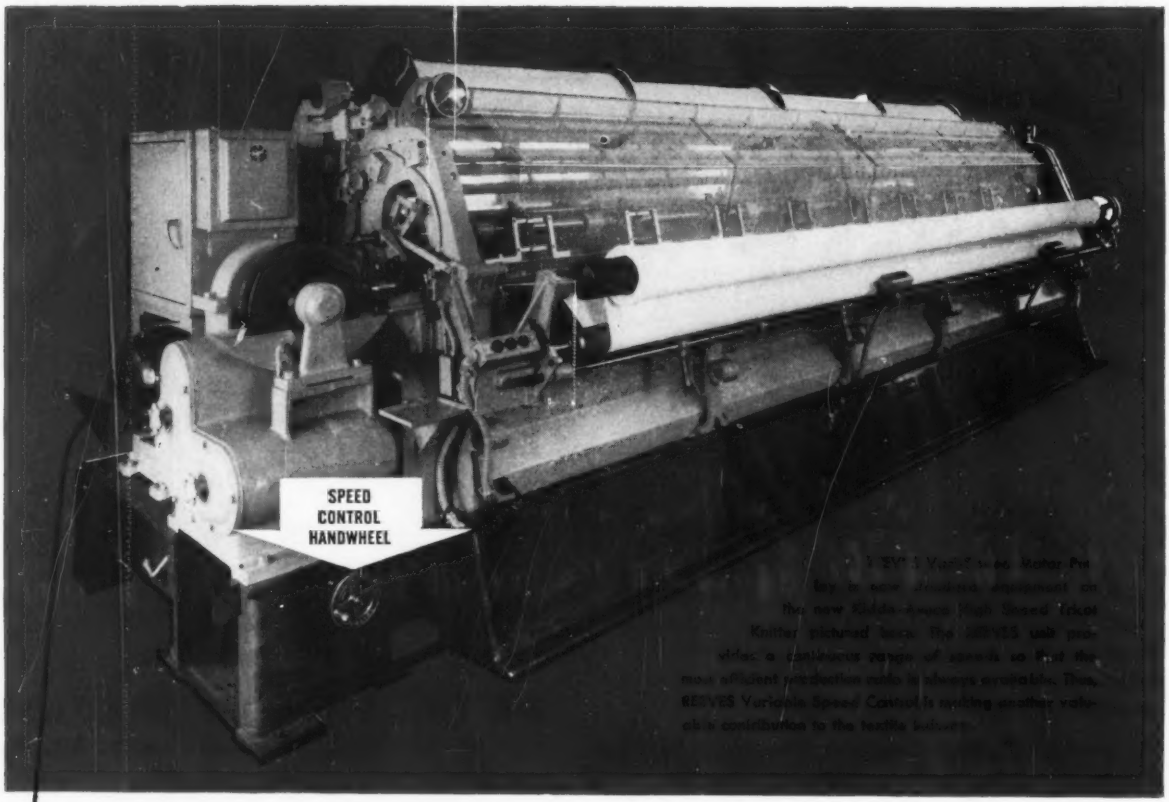

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SPRING-BEARD NEEDLES

Arrow LATCH NEEDLES

A MESSAGE TO AMERICAN INDUSTRY • ONE OF A SERIES

No Room for Industrial Complacency

Do you believe that American industry is equipped with remarkably up-to-date and efficient machinery? If you do, you are mistaken. The fact is that a large share of American industry's equipment is ancient, of obsolete design and incapable of attaining the efficiency that is made possible by modern production techniques.

This fact is documented by the Seventh Inventory of Metalworking Equipment, just completed by AMERICAN MACHINIST, a McGraw-Hill publication. In brief, AMERICAN MACHINIST shows that:

1. More than half (56%) of American industry's most basic production equipment—machine tools and metal-forming units—is overage, and much of it is so old that it has very limited usefulness.

2. Since Korea, the situation has become dangerously worse.

Facts vs. Plausible Theory

These conclusions contradict the widely-held impression that America's industrial equipment is in better physical shape than ever before. The prevalence of this impression is not surprising. We, as a nation, have spent about $125 billion for new industrial plant and equipment since World War II. That is more than in any previous period in our history. During 1953, American industry invested $21 billion in new plant and equipment, an all-time high. From this, it would be reasonable to infer that our industrial plant and equipment must be in fine condition.

But the facts do not support that inference with respect to the machine tools and other metalworking equipment that are so crucial to our economy in war and peace. Here are the key findings of the AMERICAN MACHINIST Inventory:

(1) More than one million machine tools—out of a total of less than two million in the metalworking industries—are at least ten years old. Many of these, after day and night operation

TEXTILE WORLD

during the war years and the recent rush to rearm, are actually much older production-wise than their age in years indicates. In most cases, these machines are unable to produce goods as efficiently as modern equipment can, thus needlessly increasing costs.

(2) Almost one out of five machine tools is more than twenty years old. Most of these machines are so outdated by modern standards that they have little more than scrap value. And an even larger portion of our metal-forming equipment (presses, brakes and shears, bending and straightening machines) has passed the 20-year mark and is beyond normal retirement age.

(3) Two out of three machine tools are of designs predating World War II, though many of them have been built since the war. Thus, two-thirds of our machine tools fail to incorporate the many major postwar improvements in design and operating methods.

(4) Never before has outmoded high-cost equipment been so widely diffused throughout American industry. In every one of fifteen major divisions of metalworking production, more than 45% of the machine tools are at least ten years old.

(5) Not since the depression days of the 1930's has the average age of machine tools risen so rapidly as it has in the past four years. Today, 55% are ten years old or older, compared with 43% just before Korea.

Quality vs. Quantity

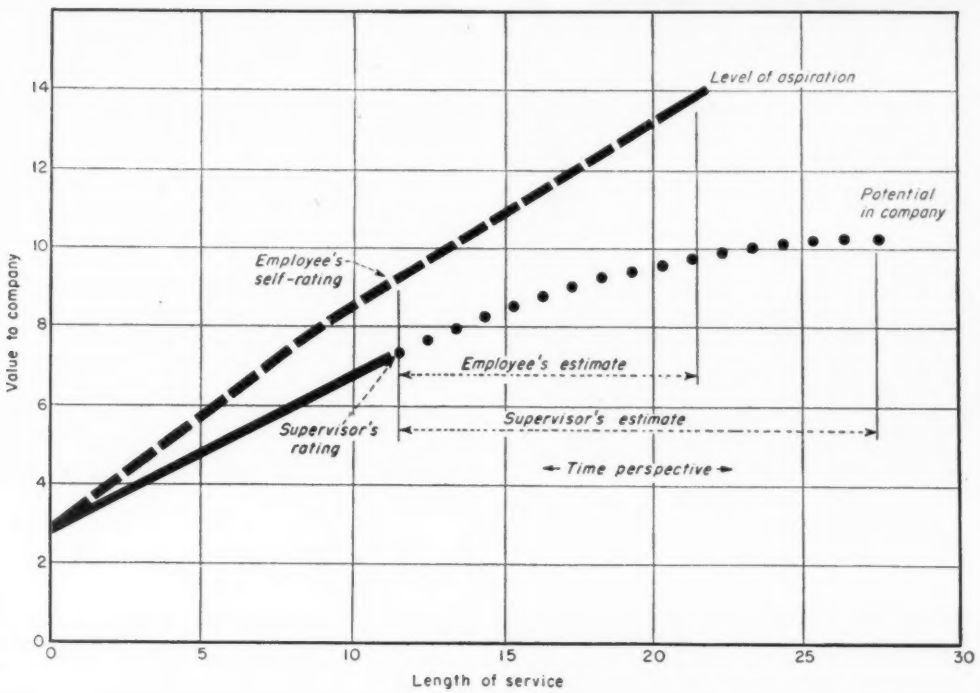
Why has the condition of our metalworking equipment been steadily deteriorating since the end of World War II? Part of the explanation lies in the fact that, in the immediate postwar years, production of metalworking equipment lagged behind the production of industrial equipment generally. The larger part of the explanation, however, lies in the tremendous postwar expansion of the American economy. This expansion, which has more than doubled our total industrial capacity, has imposed requirements for metalworking machinery that have been met only by more extensive use of old and obsolete tools. In the critically important field of metalworking, the job of providing up-to-date tools is bigger than it ever has been.

There are those who argue that the time has come to cut back investment in new industrial plant and equipment and divert more of the national income into current consumption. They cite both the great increase in the nation's total industrial capacity since World War II and the fact that some industries now have more than ample producing capacity to meet their needs. But this type of calculation leaves out the *efficiency* of that producing capacity.

The AMERICAN MACHINIST Inventory makes it manifest that in the key field of metalworking we are alarmingly short of first-rate, low-cost producing capacity. If we fail to remedy this situation by speeding the replacement of obsolete tools, it will be at the peril of our prosperity, at the peril of a sustained increase in our standard of living and of our national security.

McGraw-Hill Publishing Company, Inc.

TEXTILE WORLD
Jan., 1954 • Vol. 104 - No. 1



TOO FAR, TOO FAST is where this man thinks he is going. The employee's self-rating is way out of line with his supervisor's rating. However, if the employee is kept informed about where he stands, he is better able to predict his future.

Put Realism Into Your ON-THE-JOB RELATIONSHIPS

▶ A realistic man-to-man relationship between a boss and the people under him will allow the people to develop into more valuable assets to the company. To grow, each man must—

- **Know what is expected of him**
- **Know how he is doing**
- **Be given assistance as needed**
- **Be rewarded on the results of growth**

By WALTER G. MAHLER
Industrial Div., Psychological Corp.

THE OBJECT OF management development is to stimulate growth on subordinate levels. Growth is an increase in a person's ability to achieve (1) the goal you set for him and (2) the goal he sets for himself. Growth means a better job done now, as well as an increased potential. For a man to grow, he must:

1. Know what is expected of him
2. Know how he is doing
3. Be given assistance as needed
4. Be rewarded on the results of growth

These requirements are not met in most plants. People usually don't know what is expected of them or where they stand. If the relationship between an immediate supervisor and his people is based on these requirements, anxiety and tension are re-

(Continued on page 170)

Based on a paper presented at the Southern Industrial Relations Conference, Blue Ridge, N. C.

ROLLS OF STITCHED CLOTH are rolled off a low table at the end of the shearing machine onto a dolly by operator Kyle Woods.

At Woodside Mills—

The Newest Way To Operate a CLOTH ROOM

By RICHARD B. PRESSLEY
Assistant Editor, TEXTILE WORLD

THE ELECTRIC HOIST is being used by Roy Tumblin to remove a roll of cloth from the dolly and place it back of a grading frame in the cloth room.

MINIMIZED HANDLING OF CLOTH, simple but adequate records, a system for grading staple- and filament-rayon cloth that all but evaluates weavers' ability, and the newest work methods tied in with modern equipment spark the cloth-room operations at Woodside Mills' Simpsonville, S. C., plant.

Cloth Is Stitched and Sheared In One Continuous Operation

Cloth is brought into the cloth room from the weave room 25 to 30 rolls at a time on trucks. Styles of cloth are intermixed on the trucks, and they are usually stitched together in the cloth room with no thought of style separation.

The loom cloth rollers all have sash cords nailed to them in place of the usual wooden slats. The cords result in a cost saving and are also always at hand when they are needed.

Dope-dyed fabrics and fabrics of semiloom-finished constructions are separated at the stitcher so that they can be graded by a grader who is assigned special styles of cloth.

A Singer sewing machine, a tiered scray manufactured by the maintenance department of the mill, a Curtis & Marble shearing machine, and a low wooden table to receive rolls of cloth stitched together in 1,000- to 1,200-yd. lengths are joined together and work as a single unit.

The stitcher is operated by one man at the front of the unit, and another man doffs the large rolls of cloth from the back and places them on dollys for transporting to the grading frames in the adjoining room.

The dolly casters have ball bearings, and the cloth is easily rolled to positions back of the cloth-grading frames when cloth is needed.

Monorails and Conveyors Are Used To Handle Cloth

Twenty Sykes cloth-grading frames are arranged 10 to

Cloth is lifted manually only twice in the rayon-cloth section of Woodside Mills' Simpsonville, S. C., plant. Work methods closely approach an assembly-line layout as cloth is carefully graded and shipped without being stored. The operating methods feature—

- Monorails and conveyors to handle cloth
- Grading frames laid out for convenience of graders
- Rechecking of graded cloth to insure uniformity
- A new system for charging seconds to weavers

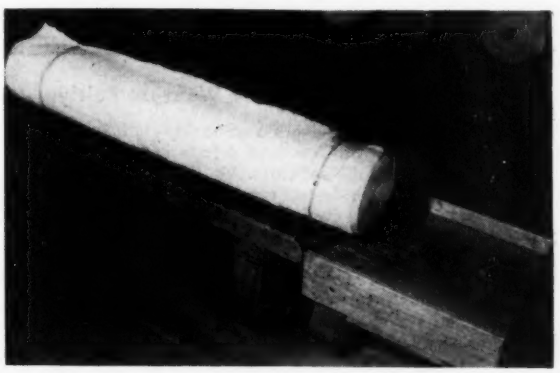
A LASHBACK from a broken warp end is being removed from a roll of filament-rayon cloth by one of the graders, Lora Terry.

a row in two rows facing each other. Frames are individually driven with ½-hp. motors.

A monorail circles the backs of the frames for the hoist that lifts the rolls onto the standards behind each frame. The cloth-roll journals rest on two ball bearings to eliminate friction as the cloth is pulled off the roll.

A Budgit ½-ton electric hoist is mounted on a carriage on the monorail. Two short lengths of pipe are put over the cloth-roll journals during lifting. The pipes are welded to two lengths of chain connected to the hoist, and one man can easily put a large roll of cloth on the standards.

A conveyor belt under each row of grading frames takes rolls of graded cloth away. To remove a roll of graded cloth from a frame, a grader merely releases the full cloth roller and allows it to drop to the platform, removes the roller, and pushes the cloth onto the conveyor belt. A Sykes collapsible stainless-steel cloth roller is used; so the roller is just squeezed and pulled free of the cloth.



GRADED CLOTH is simply rolled off a wooden board attached to the cloth-grading frame onto a conveyor belt for removal.

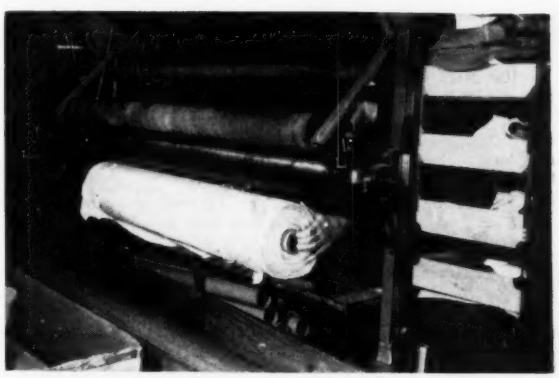
Cloth Is Packed and Shipped Straight From the Conveyors

The conveyor belts are 12 ins. wide and are equipped with wooden sides to guide the rolls of cloth. Each belt removes cloth from 10 frames for a total distance of 75 ft. A ¾-hp. motor drives each belt.

The belts run constantly except when a roll of cloth is at the end of the line waiting to be doffed. Hinged tilting tables trip an electric switch and stop the belts when a roll of cloth reaches the end of a line. When a roll is removed from a tilting table, the conveyor belt starts moving again automatically.

First-quality cloth removed from the conveyor lines is placed directly into rows of shipping cases located at the ends of the lines. The shipping cases are mounted on trucks and are easily moved to the shipping point after they are strapped.

Since the trucks have only three casters, shipping



AN AUTOMATIC SWITCH in the tilting end section stops the conveyor and holds the roll at the end of the line until it is removed.

CLOTH-STORING PROBLEMS are solved by placing first-quality cloth directly into shipping cases on special trucks.

SECOND-QUALITY CLOTH is withheld from shipments and held until enough is collected to fill a complete shipping case.

cases are easily tilted onto hand trucks for movement to the warehouse. Each case contains one style.

The cloth is picked up manually only twice in the cloth room: once when it is placed on the stitching machine and again when it is placed in shipping cases.

Grading System Treats Weavers Fairly

This system for charging second-quality cloth to weavers gives the weaver with the most defects in a roll of cloth the lion's share of the bad cloth. On the other hand, weavers with only minor defects get credit for a small share of the yards of seconds even though they may weave half the full roll of cloth. The over-all results are that every weaver does his best to make good cloth because he is given the proper credit. In effect, the method evaluates a weaver's ability. The system works this way:

Seconds per roll of cloth are charged to weavers by the following rule:

1. Add each shift's points. Allow four points for a major defect, one point for a minor defect

1st shift: 4 major, 2 minor—18 points
2nd shift: 5 major, 1 minor—21 points
3rd shift: 6 major, 1 minor—25 points

2. Add the three shifts' points together.

$$18 + 21 + 25 = 64$$

3. Divide the total points into the total yards. (110 yds. in this case)

$$110 \div 64 = 1.7$$

4. Multiply the answer you get by each shift's points.

$$1.7 \times 18 = 30.6$$
$$1.7 \times 21 = 35.7$$
$$1.7 \times 25 = 42.5$$

5. Add the total points together. This will give you within 1 or 2 yds. of the total. You may have to add or subtract a little to make your total even.

30.6	31
35.7	36
42.5	43
108.8	110

6. Charge each shift with the rounded-off number of yards of second-quality cloth.

Inspecting and Grading Are One Operation

Cloth is graded as it is inspected. Usually, all cloth is graded on a dark background. No lights are used underneath the cloth. Overhead fluorescent lamps running the length of the frame light the cloth as it is graded.

Graders' production ranges from 225 to 600 yds. per hr., depending on the style of cloth. Rolls of cloth vary in length from 100 to 110 yds. Each frame is equipped with two Veeder-Root counters, one for measuring each roll of cloth and one for measuring the total daily production for each grader.

The point system is used to grade cloth; a major defect is given four points, and a minor one is given one point. White tickets (printed to specifications for the Simpsonville plant) are used in grading.

When cloth is removed from the loom, the cloth doffer uses a blue pencil to mark the cloth with the loom number, style number, and date.

Each inspector keeps a supply of the printed tickets on a small wooden box at her frame and uses one for each roll of cloth. She marks the ticket with the piece number, the style, the loom, warp lot, picks per inch, etc. The back of the card contains a checklist of most major and minor warp and filling defects. In grading the cloth, the grader checks off the defects by points and yards for each shift.

When a roll of cloth is graded, the grading ticket is tied around the roll, and the roll is dropped onto the conveyor.

The man who removes the cloth places it in a shipping case and leaves a section of the ticket containing the style, yards, and piece number attached to the cloth. He tears off the section showing the graded points and clips it to the end of truck holding the packing case. This ticket is filed in the cloth-room office for one year and at the end of that time is transferred to the shipping warehouse and held four more years. This system of filing makes it possible to quickly trace every shipped roll of cloth for five years.

(*Continued on page 188*)

Why TOP-BREAKING Machines Are a Logical Development

▶ The American system of worsted spinning broke down the barriers and created the need for short wools, which became more and more in demand

▶ Gilling and drafting developments have improved sliver variation, and top-breaking machines may give the uniformity in staple length that is so necessary

By FRANCOIS E. CLEYN
President, Spinners Ltd., and Consulting Editor, TEXTILE WORLD

ON THE FOLLOWING PAGES you will find descriptions of top-breaking machines and mill-installation stories illustrating their use.

To properly place these machines in their true perspective, we should consider some of the events leading up to their development.

The American System Proved Itself in Three Ways

The thinking of the men who operate the worsted branch of the textile industry has changed drastically because of the American system. Although this system was received with a great deal of skepticism when it was first introduced, three basic facts have been clearly established:

1. Good yarn can be produced with a minimum of operations and doublings.
2. Wool can be subjected to long drafts under certain conditions without any deterioration in yarn quality.
3. The introduction of new types of machines has enabled the worsted industry to increase workloads and reduce costs considerably.

This progressive thinking by the yarn mills and the machinery manufacturers has yielded excellent results, but only moderate progress has been made in the closely allied combing section of the industry.

How Spinners and Combers Have Worked Together

Combed wool is still the basic material of the worsted industry. Yard-to-yard evenness of top and uniformity of staple length are essential for the conversion of top into yarn on any system.

Very little has been done to improve the comb itself, but progressive combing plants have installed stop motions on gill boxes and have adopted pin drafters or gill reducers after combing. These developments have made it possible to deliver a more-even sliver as measured by yard-to-yard variation.

But the American system also demands uniformity in staple length as well. Shorter wools previously used only on the French system have become more and more in demand. As a matter of fact, certain types of wool formerly sold at a discount in the world markets now often bring a premium.

The combing plants have found it increasingly difficult to satisfy the needs of American-system spinners. But the spinners could not compromise, because even slight differences in top make a tremendous difference in running qualities and yarn appearance.

Developments in two directions were therefore prompted by the above situation:

1. Roving and spinning frames were changed to accommodate tops of longer staple length.
2. Machines were developed to "square" tops, or break the longer fibers.

What You Can Expect Of Top-Breaking Machines

Now we're back to the top-breaking machines. Don't expect any miracles from them.

The need for careful sorting has not been eliminated. However, a troublesome small percentage of long fibers can be eliminated, and a good-running top can be produced.

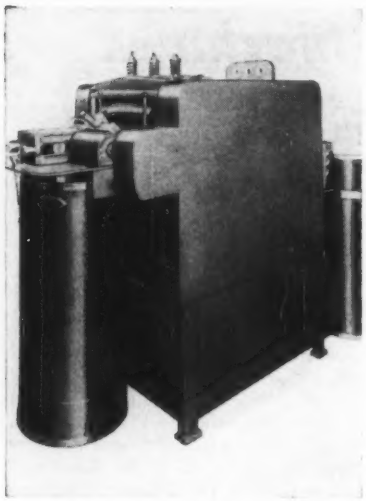
The success or failure of top-breaking machines will depend on the following factors:

1. Weight of sliver fed
2. Percentage of fibers that require breaking
3. Position of the top-breaking machine in the set

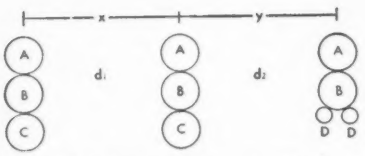
The revolution in worsted yarn manufacture, which started with the evolution of the American system, has been given important assistance by the introduction of top-breaking machines.

This special report was compiled and edited by James H. Kennedy, Southern Editor, TEXTILE WORLD.

SOUTHWELL SIZER



SIZER has three sets of rolls on the standard model and does not drive the middle roll through the stock but positively by contact from the top fluted roll. Roll face is 16 ins., and production is about 300 lbs. per hr.



Roll sizes and range of settings are as follows:

Draft is adjustable from 0 to 20 in each zone.

Front-roll speed is 0 to 1,350 ft. per min.

Rolls *A*, *B*, and *C*, are of 3-in. dia. *B* is rubber covered and the others are scratch fluted. Rolls *D* are 1 in., scratch fluted.

Setting *x* is adjustable from 3 to 18 ins.; *y* from 2¾ to 18 ins.

The Southwell Sizer, a top-breaking machine developed after over three years of work by Robert Leslie, Sr., superintendent, and Robert Leslie, Jr., is now being marketed by Southwell Textile Machinery Research Corp., North Chelmsford, Mass.

Drafts are usually from 0 to 15, and production is about 300 lbs. per hr.

The Sizer is equipped with three sets of rolls, and a fourth set can be added if desired. The top roll in each set drives a composition-rubber roll below it by friction. The top roll is geared directly to the single bottom fluted roll; so no power is transmitted through the stock in process.

Top-Roll-Drive Is Not Through the Stock

It is this principle of driving the top roll that is the heart of the machine. Not only is accurate fiber breaking thereby possible, but high draft and high production with good evenness are also practical.

The nip distance between the front and the second sets of rolls—where fiber breaking takes place—can be set as low as 2⅜ ins.

Front-zone draft is adjustable from 0 to 20, and back-zone draft from 0 to 20. Total over-all drafts up to 400 are possible.

Sprocket-and-chain drives are used to facilitate adjustment of the roll stands to the staple array of the stock fed and delivered.

Roll-Face Width of 18 Ins. Gives 16-In. Working Space

Roll pressure is applied through springs and adjusted by bolts that are screwed down to increase nip pressure.

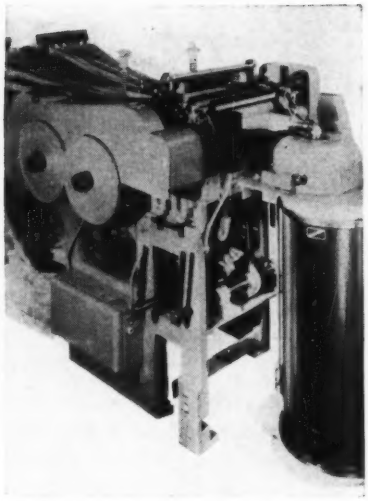
The working width of the rolls is 16 ins.

The middle roll is an Accotex J490 cot fitted to a steel roll. Lapping is said to be minimized with this covering.

Other features of the machine are: self-aligning ball bearings; front and back stop motion; electrical knock-off; and start, stop, and jog switch.

Single or multiple can delivery, coiler, or balling head can be furnished with the Sizer.

HOLDSWORTH



TOP BREAKER is a conventional intersecting gill box equipped with an extra three-roll set of front rolls that form a breaking section between fallers and coiler.

A combination intersecting gill box and top-breaking machine is now available from Holdsworth Gill Screw Co., 55 Sabin St., Pawtucket, R. I.

The extra set of rolls added to the front of a conventional gill box allows fiber breaking to be accomplished on a regular production machine.

Minimum draft on the Top Breaker is 8 (on a regular intersecting gill box it is 6.5), and maximum draft is 15.

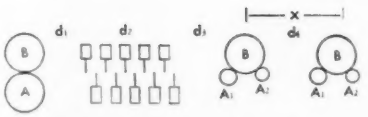
Why a Faller Bed Is Used To Help Break Top

Theory behind the development of the machine is this: In order to break fibers properly, the fibers should be thoroughly parallelized and presented to the breaking rolls as a web. It was, therefore, a natural development to put the breaking section at the front of an intersecting gill box.

The extra set of delivery rolls—which duplicate the regular three-roll take-off—consist of a 2½-in. Accotex-covered roll riding on 2½-in. and 1¼-in. fluted rolls.

A TEXTILE EQUIPMENT NEWS FEATURE

TOP BREAKER



Roll sizes and range of settings are as follows:

Draft—d_1, d_2, d_3 adjustable from 2.5 to 5; d_4 is fixed at 3.

Front-roll speed is 60 to 120 yds. per min.

Rubber-covered rolls *B* are 2½ ins. in diameter. Scratch fluted rolls A_1 and A_2 are 2½ and 1¼ ins. respectively.

Setting *x* is adjustable from 2½ to 6 ins.

Fibers can be broken to have a maximum length of 3⅜ to 6 ins. The rolls can, however, be tailored to break down to 2½ ins. if desired.

Draft in Breaking Section Is Fixed at Three

Front-roll speed is 120 yds. per min. Width of the rubber rolls is 13⅛ ins., of the steel rolls 13⅜ ins., and setover of the fallers is 12½ ins.

The rolls are spring weighted and feature an easy-locking cam lever.

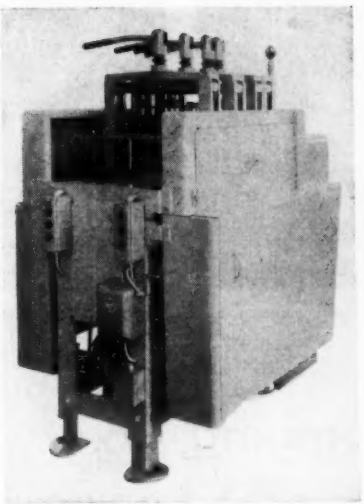
Speed ratio of the two sets of front rolls is fixed at 3 to 1; so draft in the breaking zone is 3.

The rubber roll is a fabric-lined cot with a ½-in. Accotex J490 covering.

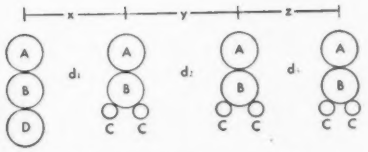
The Top Breaker also features: pressure fittings throughout; roller bearings on all rolls; and the usual stop motions for feed, fallers, delivery, and production.

Delivery is into a coiler to achieve maximum poundage per can, and one- or two-can delivery can be furnished with the single-head machine. The machine can be equipped with either can or ball creel.

BERKER SQUARE TOP ATTENUATOR



SQUARE TOP ATTENUATOR has four sets of rolls and drives the middle rubber roll from the top fluted roll. Roll pressure is very high, as are speeds and drafts.



Roll sizes and range of settings are as follows:

Draft—d_1, d_2, and d_3 are each adjustable from 0 to 6.

Front-roll speed is 100 to 800 ft. per min.

Rubber-covered rolls *B* are of 3-in. dia., rolls *A* are also 3 ins., and rolls *C* are 1½ ins. *A* and *C* are scratch fluted. *D* is 3 ins., scratch fluted.

Setting *x* is adjustable from 1½ to 10 ins., *y* and *z* from 2½ to 10 ins.

High draft and high production characterize the Square Top Attenuator, a top-breaking machine being sold by R. C. Berker Co., Inc., Thornton, R. I.

Drafts up to 216 are said to have been accomplished, and production has been increased between 300 to 400 lbs. per hr.

Four sets of rolls are used, and in each case the scratch-fluted top roll drives a rubber roll beneath it by frictional contact. The top roll is positively driven through gears from the bottom roll. The friction drive to the rubber roll assures constant surface speed regardless of roll diameter or the type or condition of the stock being processed.

Machine Can Break Fibers To 1½ Ins. Maximum Length

Fiber breaking takes place between the front and second sets of rolls. The setting is from 2⅛ to 10 ins. on the standard machine, but the unit can be tailor made to break down to 1½ ins.

Drafts are adjustable from 0 to 6 in each of the three drafting zones; so the maximum theoretical draft is 6x6x6, or 216.

Sprocket-and-chain drives allow easy moving of the roll stands to adjust for fiber length desired.

The bottom rolls for all except the back set of rolls are two small fluted rolls. The double nip enables closer setting for fiber breakage and allows the fibers to be gripped securely.

Pressures and Speeds Are Very High

Up to four tons of pressure can be applied to each set of rolls through a spring system with a cam-action lever for easy loading and unloading.

Minimum front-roll speed is 100 ft. per min., and the maximum is 800 ft. per min.

Working width of the machine is 14 ins. across the roll faces.

The rubber roll is a steel arbor to which a ½-in. thickness of a composition material has been vulcanized. Hardness is 85 to 90 on the Durometer.

Other features of the Square Top Attenuator are: roller bearings on all rolls, ball bearings on all other shafts; all-steel welded frame of heavy construction; interchangeable parts; all grease fittings; indicator light to denote a stop; electronic knock-offs on front and rear; yardage-counter knock-off.

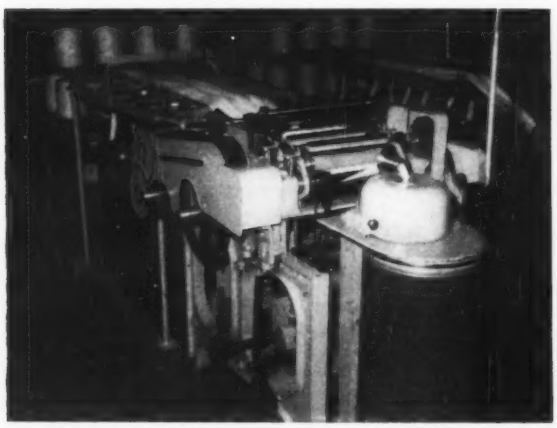
The machine can be delivered with a balling head or with coiler delivery into up to six cans. Either ball or can creel can be furnished.

SIZER is used at Southwell's after French or Noble combing and either to break top or as a drawing process.

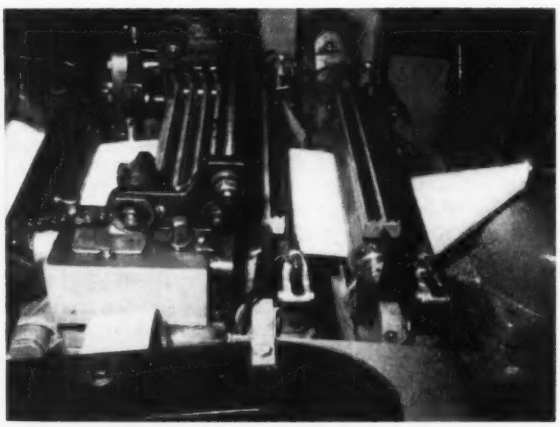
CAN DELIVERY is used on this model, but other Sizers are equipped with coiler and ball delivery. Felt-covered clearers prevent lapping.

At Southwell Combing Co.—

▶ Southwell's Sizer has proved itself in production and is being used on wool, mohair, and synthetic blends.



TOP BREAKER is in the set right after French combing—can creel and single coiler delivery—and puts out about 130 lbs. per hr. One gill reducing follows as the final operation.



FALLER FIELD (left) distributes the stock evenly and presents no bunches to the breaking section (right). Mill added guide bar and has no trouble with static.

At Carvill Combing Co.—

▶ **Holdsworth's Top Breaker, in full production, is increasing the limit spin and improving evenness.**

CAREFULLY ENGINEERED top breaking is enabling Carvill Combing Co., Moosup, Conn., to increase its customers' limit spin up to 10%. The Holdsworth Top Breaker is in the set right after French combing and is followed by a finisher gilling.

As Henry Haskell, president of Brunswick Worsted Mills and treasurer of Carvill, put it, "Look at this overgrown 62-64s Australian we had to run. It would have been impossible for us to do a good job without breaking the top on this machine. As it was, Brunswick spun this lot into 45s."

"Or take this lot of 64s. Brunswick was having some trouble in spinning because a few of the fibers were longer than the ratch we had to set. So we just ran the rest of the lot through the top-breaking machine and spun it into 45s—and in colors, too."

A little experimenting was necessary to find the best

TOP BREAKING is being done as either the first, second, or only operation after French or Noble combing at Southwell Combing Co., North Chelmsford, Mass. Its machine, the Southwell Sizer, was developed right at the mill and has been in mill production for over a year.

The Sizer, which inventors Robert Leslie, Sr. and Jr. refer to as a "fallerless gill box," is producing at the rate of 250 to 300 lbs. per hr. in regular production.

Here's a Typical Layout Including Top Breaking

Let's look at an example in which the top-breaking machine is used as the second operation after combing.

The first operation after combing is an intersecting gill box that has 25 comb ends behind it and produces a 5¼-oz. sliver at 170 lbs. per hr. on 64s stock.

Then comes top breaking. (Or the machine can be used as a regular drawing operation without breaking.) Twelve ends of the 5¼-oz. sliver are fed to the Sizer, and one 5-oz. or two 2.5-oz. ends are delivered on balls. Production is 300 lbs. per hr.

As the first operation after combing, the Sizer is used this way:

The Noble comb delivers a 1-oz. end at 40 lbs. per hr. with 16% noil on 64s stock.

Twenty-five of these comb ends are fed to the top-breaking machine, and a 5-oz. end is delivered into a can. Production is 300 lbs. per hr. In this case, the average staple length before breaking was 6 ins.; after breaking it was 3¾ ins.

The finisher gill box that is used as the last operation takes six ends of broken top and delivers two ends of 2½-oz. top on a ball.

Evenness Results Are Encouraging

The Sizer does not harm evenness and, in many cases, improves it considerably.

For example, in the case where the machine is used as the second operation after combing, unevenness from the first gilling was 21% average and 30% maximum on the Pacific tester.

Putting 12 of these 3½-oz. ends through the Sizer (draft of 9.0 and production of 300 lbs. per hr.) resulted in a 4½-oz. end with 10% average and 14% maximum unevenness.

Reports from spinners using these new tops confirm the tests at the combing plant. Particularly good results have been obtained on the cotton spinning system with stock broken to 1¾ or 2 ins. on the Southwell Sizer.

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place in the set to put the top-breaking machine. Carvill tried it before and after combing and found that the process was ideally suited for the first gilling after combing.

On 70s wool, the French combs deliver a 3¾-oz. end with about 10% noil. Production is about 15 lbs. per hr.

Eight of these 3¾-oz. ends are put up behind the top-breaking machine. Draft in the faller section is about 3.08 and in the breaker section 3.0; so total draft is 9.24. Production off the Top Breaker is about 130 lbs. per hr.

The last operation is a gill reducer that takes eight ends of the 3¼-oz. broken sliver and makes two balls of 2⅝-oz. top. Production is about 150 lbs. per hr.

Some of Carvill's top is spun next door at Brunswick Worsted Co., with which it is affiliated. Experience there has shown that an undyed broken top should rest for at least 10 days for best spinning results. The fibers naturally have to be stretched before they are broken, and this waiting period gives them a chance to become relaxed again.

Dyeing, however, (through the action of the hot water) hastens the relaxing. Dyed tops can be spun right away without trouble.

The job of breaking top isn't as easy as it sounds. John Ramsey, president and works manager, who worked with Holdsworth in the development of the Top Breaker and has had the first production model in operation for over eight months, had to develop his own methods.

For instance, no two lots break alike. Even if the machine is set with the nips of the breaking rolls 4 ins. apart, fiber strength and elongation determine just what the finished staple array will look like.

Many staple arrays have to be made before the optimum setting is made for each wool. Just the long fibers should be broken; the machine shouldn't be forced to break fibers shorter than the level portion of the staple array.

Some wools are rougher on the machine than others. A Delaine, for instance, is stronger than an Australian and causes the machine to heat up more quickly.

Length in grade doesn't mean so much any more, and the top futures market is thus feeling the effect of top-breaking machines.

The high roll pressures required for breaking help to reduce vegetable matter in the top by acting as miniature crushing rolls.

A broken or squared top looks finer than it actually is; the longer, coarse fibers are gone. But each long fiber makes two short fibers, so a micron count may show the top to be actually coarser than before breaking.

Evenness—a very important point to watch in any process—is not affected with the Top Breaker.

At Ames Textile Corp.—

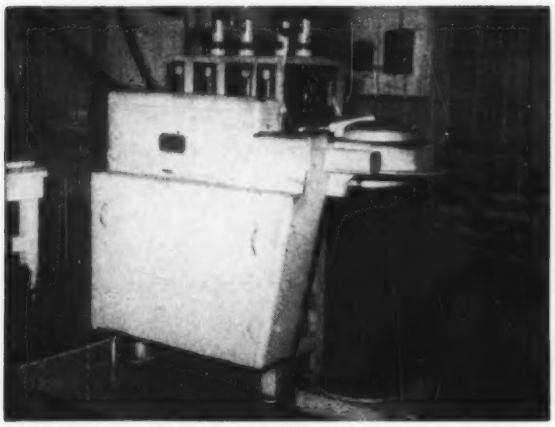
▶ Berker's Square Top Attenuator has been run experimentally at 200 lbs. per hr. with good evenness results.

PILOT-PLANT TESTS at Ames Textile Corp., Lowell, Mass., indicate that the Berker Square Top Attenuator may take its place as the first operation after combing to break top or to act just as a drafting and evening process.

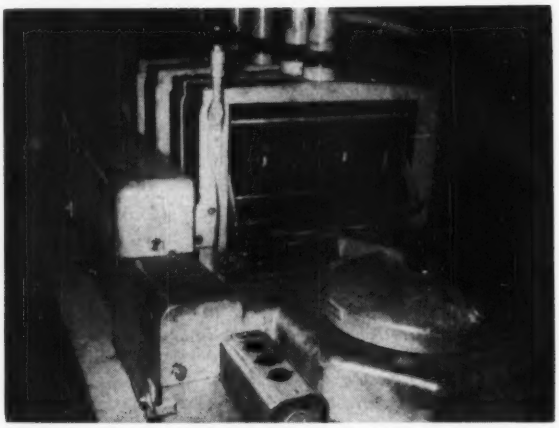
Production at the rate of 200 lbs. per hr. has been obtained experimentally, and Fritz Kobayashi, quality-control supervisor, believes that machine efficiency will be at least 80% in production.

You can only feed so much bulk at the back of any

TOP-BREAKING MACHINES (*Continued*)



SQUARE TOP ATTENUATOR is in the pilot plant at Ames and has been used to break wool and other fibers.



THIS SINGLE-COILER MODEL has broken top at productions equivalent to 200 lbs. per hr. with excellent evenness results.

machine, and space for cans or creel is also limited. That's why theoretical drafts and production figures have to be considered from a practical angle.

The practical solution toward which Ames is working is this: feed as much as you can, and try taking off a lighter end.

What Ames Found Out About Top Breaking

The machine can be set precisely, but the nip setting is not the same as the maximum fiber length by array. The relationship between setting and fiber length varies with the stock being processed. In the range of 54s to 60s wool, however, there is no difference between nip setting and maximum fiber length.

Static can be troublesome, and a radium static eliminator came in handy during August. Also, plain steel bars above the roll nips helped to prevent the billowing that might lead to lapping.

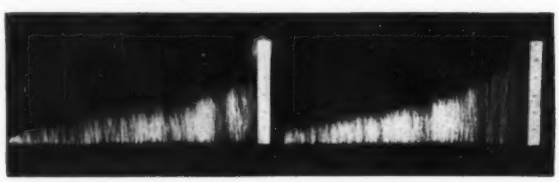
Roll weighting should be kept as low as possible to minimize roll wear. But you've got to have enough pressure to keep breaking efficiency high. Experiments have been run with pressures up to 2,800 lbs.

In one experiment, lowering the pressure from 2,800 to 2,200 lbs. meant that 0.2% more fibers between 4½ and 5½ ins. got through, even though the front ratch was 3¾ ins. Front-roll speed was 210 ft. per min. That fifth of a percent might spell trouble in spinning.

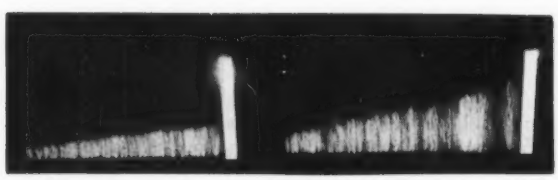
Evenness of broken top is considerably better than that of a comparable unbroken top. For instance a 58-60s lot had 15% unevenness (Pacific) before breaking and 11% after.

Staple Arrays Show Results of Top Breaking

▶ These three sets of staple arrays were made under the direction of Prof. James H. Kennedy, Jr., Lowell Technological Institute, and show typical examples of top-breaking results at each of the three mills—Carvill, Ames, and Southwell.



CARVILL lot of overgrown Australian wool had a 6-in. maximum length before breaking and, after processing on the Holdsworth Top Breaker, showed a 3¾-in. maximum length.



SOUTHWELL lot of 64-70s had a maximum length of 5½ ins. before breaking and finished with a maximum length of 2¼ ins. after a run through the Southwell Sizer.

AMES 58-60s MV shows up with a 6-in. maximum length (3.36-in. average) before breaking on the Berker Square Top Attenuator. Finished maximum length is 4¼ ins., and average is 2.61 ins.

How To Blend
DOPE-DYED FIBERS

- Where you blend dope-dyed fibers depends on the quality of yarn you're running
- Dope-dyed blends are easy to identify, and contamination can be detected in the mill

By **GEOFFREY V. LUND,** Courtaulds, Inc.

DOPE-DYED RAYON STAPLE is processed the same as regular rayon, except that blending takes on an added significance. Here are some tips for running blends on the cotton, woolen, worsted, and flax systems, plus some pointers on making blends and preventing contamination.

On the Cotton System

For highest-quality yarns, open and card the cotton and rayon separately; then blend at the comber. Well-blended and clean yarns are produced, and mixed waste comes only after the comber.

For lower-quality weaving yarns, blend before carding. Use the card speeds and settings for the grade of cotton in the blend. For certain hosiery yarns, blending at the first head of drawing may be possible; however, no draw-frame blend is as good as a blend made before carding or combing.

White cotton neps stand out against a background of colored viscose; so take precaution in blending cotton with dope-dyed fibers. Neppy cotton can be used to give tweedy effects against a colored-rayon background.

On the Worsted System

For hosiery yarn that is to be overdyed, dope-dyed rayon top can be blended with white wool top and given three gilling operations, which should preferably be on intersecting gills before drawing.

For suiting-fabric yarn that is to be overdyed, a recombed blend should be made from previously combed dope-dyed rayon and wool top. For this use, colored staple can also be blended with top-dyed wool. In this case, after dyeing, the combed-wool top is given two gillings before mixing; then the blend is recombed.

Dupion yarns can be made by blending 1.5-den., $1\frac{3}{8}$-in. staple with the 4.5-den., 6-in. staple used in the body of the yarn. In this case, combing is omitted.

On the Woolen System

Woolen mills that work with color can use their standard techniques. Three-denier, 2-in. or 1.5-den., $1\frac{3}{8}$-in. fiber can be used according to the type of wool and the type of goods. In general, 3-den., 2-in. staple gives better crispness of handle if a good wool is used; 1.5-den., $1\frac{3}{8}$-in. staple is used on this system as a spinning assistant in the production of yarns from very short shoddies. In addition to these factors, 3-den., 2-in. staple gives a better separation of color in blends with deliberate color effects.

On the Flax System

Blend before carding, and then comb on a rectilinear comb. The best stock is made from 4.5-den., 6-in. staple. Flax tow and dope-dyed fibers are best carded separately and blended at the rectilinear comb.

Another use for dope-dyed staple on the flax system is the addition of 8 to 15% of 1.5-den., $1\frac{3}{8}$-in. fiber to the material being processed. The short fibers will roll up into balls to form colored slubs and neps in the yarn.

Take Precautions Against Contamination

Contamination is a real danger, but the danger is no greater for blends that contain dope-dyed staple than for blends that contain any of the newer synthetic fibers. In fact, the inconvenience is less from two points of view: (1) there is no problem of identification in the mill, because the color of the fiber is its own identification; and (2) contamination that does occur can be seen by a keen eye and can be dealt with before the yarn or fabric leaves the mill.

Good housekeeping, good supervision, and the proper handling of waste are absolutely essential when blends of any kind are being processed. Contamination can be greatly reduced by planned production.

Plan the Flow of Blends

In planning the flow of orders through the mill, color blends that mix to a solid color should follow each other. Color blends that give deliberate color effects should be separated in the production program. A desirable order is blue, green, yellow, orange, red, purple, and blue; and light, bright colors should be followed by dark, somber colors.

In colored goods, single-fiber elements are not as likely to cause trouble as bunches of fiber. In general, blends with deliberate color effects can absorb more "foreign" fiber before trouble starts than can solid blends.

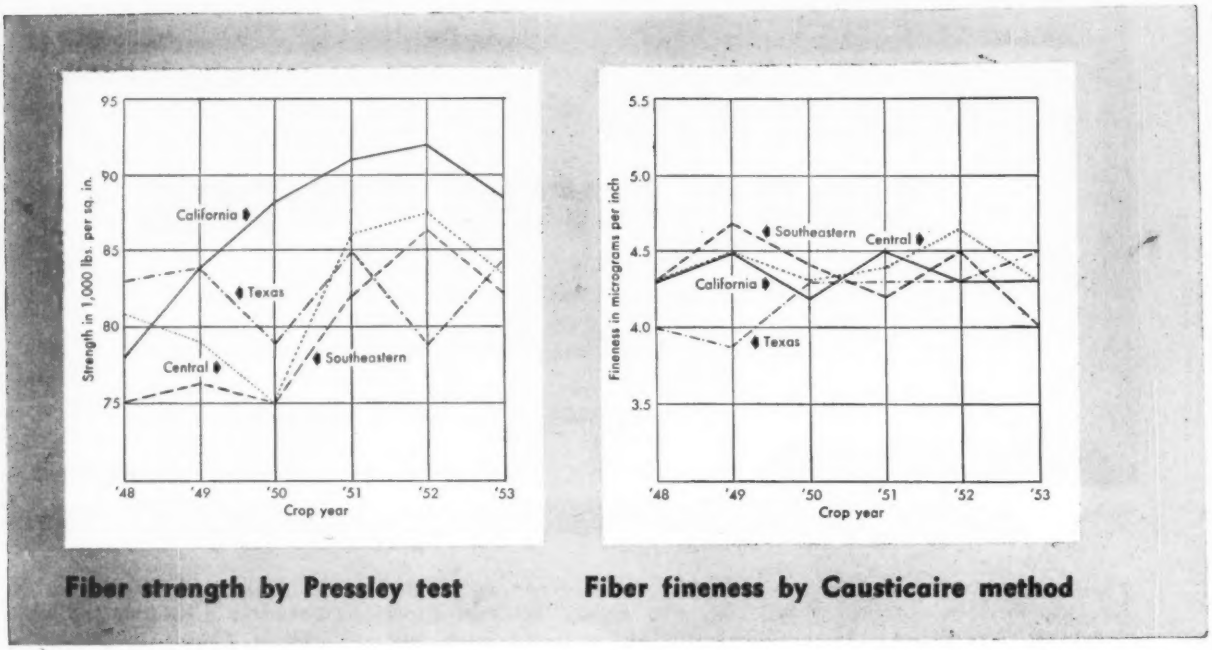
Tips on Blending

Coarser-denier fibers are, in general, slightly darker than finer-denier fibers with the same amount of pigment. The direction of the change in hue depends on the particular color. Fine fibers in blends tend to give duller and more-solid colors; coarser fibers give brighter color mixtures.

Worsted spinners can exploit these mixture effects with 4.5-den., 6-in. staple. The cotton spinner who can

(*Continued on page 186*)

Based on a paper presented to the AATT



Fiber strength by Pressley test **Fiber fineness by Causticaire method**

Here Are the Facts On the 1953 COTTON CROP

- Compared with the 1952 crop, 1953 shows—

  Fiber strength —lower

  Fiber fineness —finer

  Yarn strength —higher

  Yarn appearance—lower

- State and sectional data will help you select the best cotton for your needs

By **JOHN M. COOK,** Cotton Technologist, USDA

FIBER AND SPINNING TESTS on 1953 cotton from all major growing areas indicate that this year's crop is a little weaker and a little finer, that yarn strength is up a little, and that yarn appearance is down slightly.

The test results, which are broken down by sections and by states, are based on first pickings, and all comparisons are with first pickings of other years.

Fiber Strength

No section produced cottons that averaged extremely high or low in fiber strength.

The Southeastern, Central, and Texas samples fell within narrow limits—82,000 to 84,000 lbs. per sq. in. These limits are in the upper part of the USDA-laboratory "average" range of 76,000 to 85,000 lbs. The California cotton, at 89,000 lbs., was in the "strong" range even though 3,000 lbs. weaker than 1952.

The average for the Southeastern states was 82,000 lbs.—4,000 lbs. less than 1952. Extremes from this section were Alabama at 79,000 lbs. and North Carolina at 85,000 lbs. The average for each state fell in the "average" strength range.

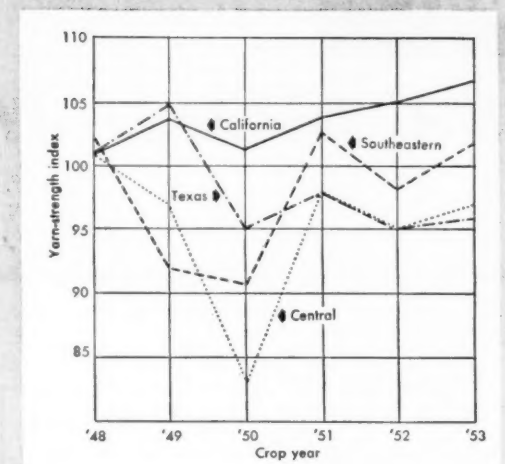
The five-state average for the Central section was 83,000 lbs. Only the 1951 and 1952 crops were stronger. Cotton from this section ranged from 78,000 lbs. for Louisiana to 87,000 lbs. for Missouri. Each state was within the "average" range except Missouri, which was considered "strong."

Texas cottons, which averaged 84,000 lbs., were stronger than any year except 1951. The California samples averaged 89,000 lbs., the lowest for this state since 1950. California cotton showed the first drop in fiber strength in six years.

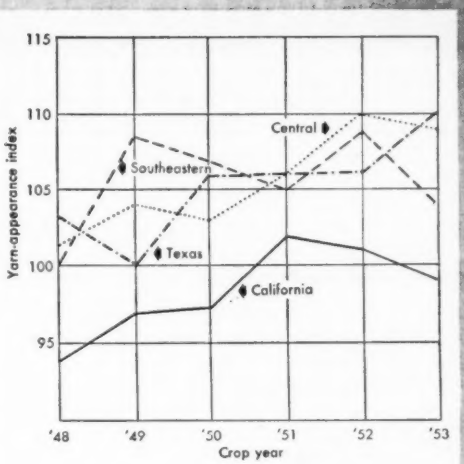
Fiber Fineness

Cottons from all sections except the Southeastern states were well within the 'average" range of 4.0 to 4.9 micrograms per inch.

The Southeastern states showed the greatest difference between 1953 and 1952—a drop from 4.5 to 4.0 to give the finest-fibered cottons of any section. The average for Alabama was 3.8, the finest, and for Georgia 4.1, the coarsest. The sectional average of 4.0 is on the low side of the "average" for upland cotton.



Yarn-strength indexes



Yarn-appearance indexes

The average fineness for the Central states was 4.3 micrograms—finer than the extreme of 4.6 reached in 1952.

Texas cottons averaged the coarsest for this state for any one year. The 4.5 for Texas compared with 4.3 for the three previous years and 3.9 for 1949, the finest year.

Fineness of California cotton averaged the same as last year's 4.3. The extreme variation for this state has been only 0.3 microgram, from 4.2 to 4.5.

Fineness measurements on the 1953 crop were made by the Causticaire method for the first time. Causticaire fineness correlates better than Micronaire fineness with weight-per-inch results by the array method. The maturity measurement obtained by this method shows the highest correlation with yarn appearance of any method used to date.

(The Causticaire method [TW, March, '53, p. 128] uses the Micronaire before and after treatment of the sample with caustic soda, rinsing, and drying.)

Yarn Strength

The average yarn-strength index for each section was higher for 1953 than for 1952.

California samples showed the strongest yarn that has been obtained in the past six years—107 against 105 for 1952.

The Southeastern states, at 102,

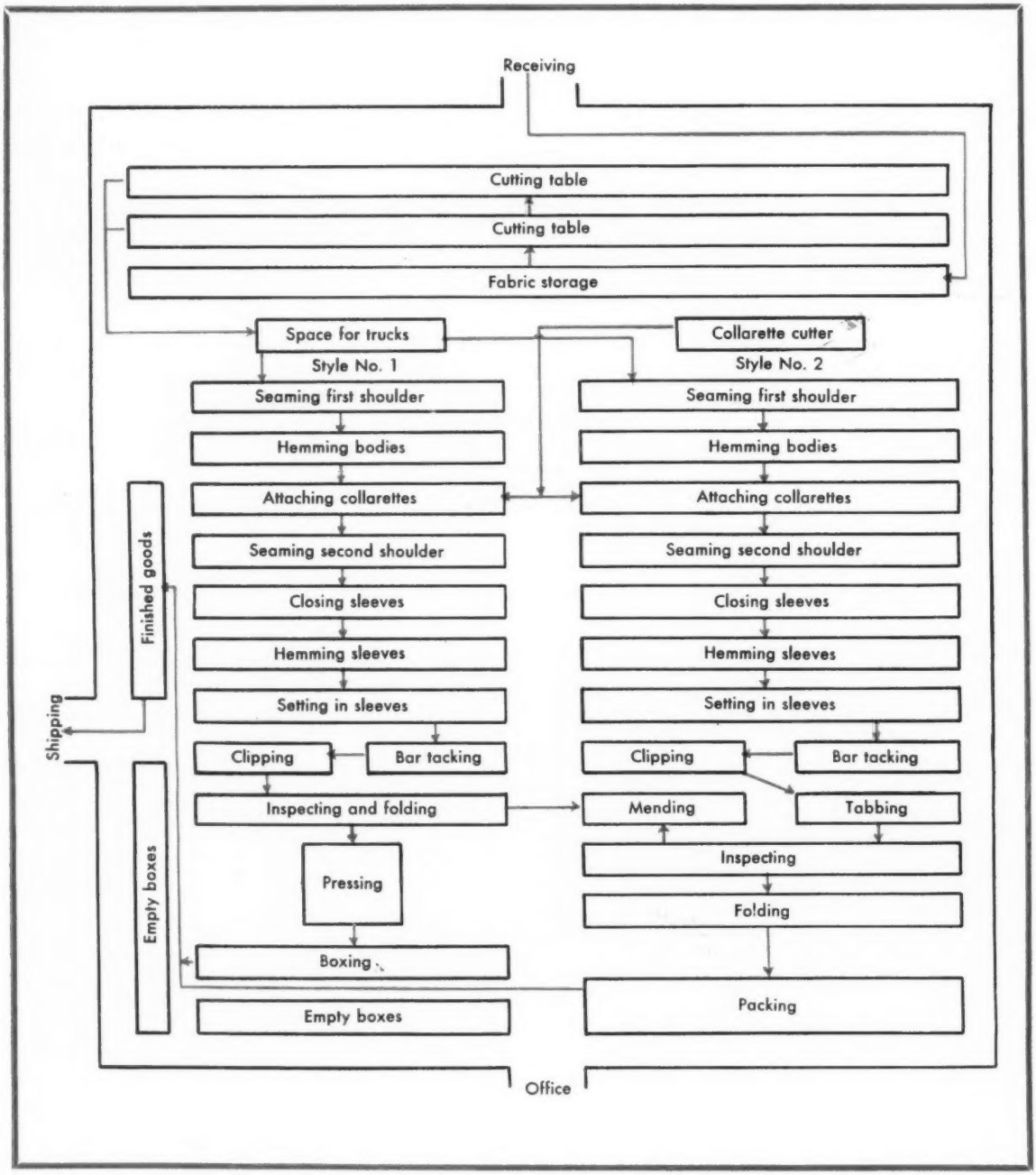
(*Continued on page 194*)

Individual Results From 13 Cotton-Producing States

	Fiber strength (1,000 lbs. per sq. in.)						Fiber fineness (micrograms per inch)						Yarn-strength index						Yarn-appearance index					
	'48	'49	'50	'51	'52	'53	'48	'49	'50	'51	'52	'53	'48	'49	'50	'51	'52	'53	'48	'49	'50	'51	'52	'53
No. Car.	76	74	73	80	81	85	4.3	4.8	4.5	4.4	4.8	4.0	102	89	93	109	96	105	101	107	108	101	109	104
So. Car.	77	74	75	78	84	80	4.4	4.4	4.4	4.4	4.2	4.0	102	80	97	105	103	102	101	105	108	101	101	102
Georgia	73	77	76	84	91	83	4.2	4.9	4.4	4.0	4.6	4.1	101	97	89	99	98	100	99	111	105	110	115	104
Alabama	76	78	75	86	89	79	4.2	4.6	4.4	3.9	4.4	3.8	103	94	89	99	94	102	99	109	108	109	112	106
Wtd. avg. SE states	75	76	75	82	86	82	4.3	4.7	4.4	4.2	4.5	4.0	102	92	91	103	98	102	100	108	107	105	109	104
Tenn.	80	79	73	87	87	85	3.9	4.4	4.2	4.3	4.6	4.1	101	96	80	100	92	99	95	102	99	108	113	107
Miss.	80	79	77	87	88	82	4.4	4.7	4.5	4.4	4.5	4.2	103	97	84	98	96	99	102	104	106	105	106	107
Missouri	83	79	72	85	88	87	4.2	4.3	3.8	4.3	4.6	4.4	102	102	88	99	98	97	96	103	98	102	108	110
Arkansas	81	80	73	87	88	85	4.6	4.6	4.4	4.5	4.7	4.4	98	94	81	97	97	98	102	105	101	107	111	109
Louisiana	86	77	74	85	83	78	4.6	4.6	4.6	4.5	4.8	4.3	100	95	81	97	94	93	106	105	103	108	112	110
Wtd. avg. Cnt. states	81	79	75	86	87	83	4.3	4.5	4.3	4.4	4.6	4.3	101	97	83	98	95	97	101	104	103	106	110	109
Texas	83	84	79	85	79	84	4.0	3.9	4.3	4.3	4.3	4.5	101	105	95	98	95	96	103	100	106	106	106	110
New Mex.	—	—	70	83	91	—	4.4	—	4.0	4.2	4.2	—	—	—	91	101	110	—	—	—	102	98	100	—
Arizona	81	74	—	85	94	87	4.0	4.2	—	4.2	4.0	4.1	100	88	—	102	100	102	84	97	—	92	95	99
California	78	84	88	91	92	89	4.3	4.5	4.2	4.5	4.3	4.3	101	104	102	104	105	107	94	97	97	102	101	99

AT ONEITA'S NEW MILL—

T-Shirts Are Made on the



LAYOUT of the system allows goods to progress from the cutting table to the shipping section very quickly and reduces garments in process.

PROGRESSIVE-BUNDLING System

- **T-shirts flow from cutting table to shipping section in 35 mins.**
- **Emphasis is given to laying garments in suitable order for the next operator**
- **Triple inspection guarantees quality**

By JAMES H. BLORE, Assistant Editor, TEXTILE WORLD

THE PROGRESSIVE SYSTEM of cutting and sewing knitted goods at Oneita Knitting Mills, Andrews, S. C., results in high-speed production, reduced costs, and better control over production.

A new concrete-block structure with brick facing houses the cutting, seaming, and finishing sections. There are no dividing walls in the plant, and goods can flow from the cutting tables at one end of the room to the shipping section at the other end of the room in 35 mins. Sewing machines are arranged so that numerous styles can be processed at the same time.

Relative humidity is controlled at 60% and the temperature at 75° F. Conditions are kept at these levels mainly for operator comfort, but processing also benefits. Climatic conditions at certain times of the year in eastern South Carolina can be uncomfortable, and controlled conditions make pleasant and uniform working conditions.

First Fabric-Quality Check Is on Knitting Machine

Fabric is knitted on 20-cut Brinton and Supreme jersey machines. Various qualities are obtained by using yarn numbers from 18s to 30s with different stitch settings. Great attention is paid to leveling stitches on the 64-feed machines. Fabric evenness is constantly checked on the knitting machine by the foreman. Close liaison with the yarn spinners is maintained to get fabric free from as many faults as possible.

Fabric is examined over an illuminated frame, turned inside out, and sent to the bleachery.

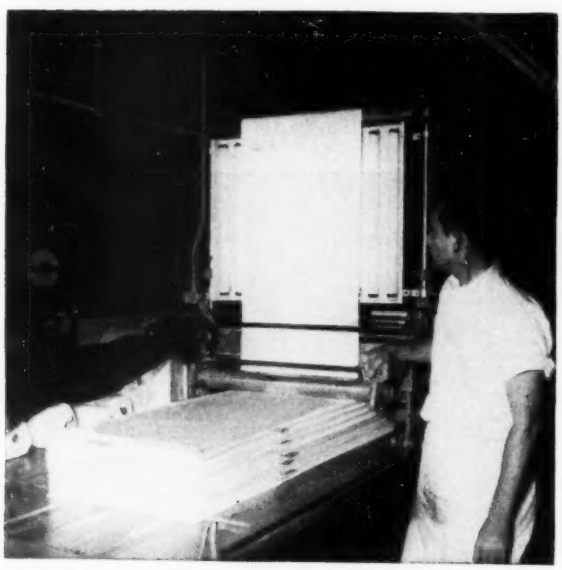
The fabric from the bleachery is wrapped in brown paper and labeled with the fabric style, weight, and width. The parcels are sorted according to style and size and stored in racks between the cutting and seaming sections.

Fabric storage between the cutting and seaming sections, even though it causes some back-tracking, eliminates the possibility of mildew damage from along-the-wall storage.

At least five parcels from each bleach lot are checked for course count, wale count, shade, evenness of bleach, and evenness of calendering.

Fabric Is Cut Inside Out

Orders for T-shirts are given the cutters, who select the fabric from the stock racks, tear off the brown paper,



INSPECTION of bleached cloth is done over fluorescent tubes as fabric is laid up. Nylon adhesive tape on the bottom layer prevents creeping.

MARKING is done for 252 layers of tubular cloth at once. Each section of 3 doz. garments is separated by a colored ticket stuck between the layers.

and slip the roll onto the laying-up machine. The fabric is cut inside out so that cut garments don't have to be turned during seaming.

The cutting tables are 102 ft. long, and 252 layers of cloth are normally laid up at one time. The fabric is examined over a fluorescent screen as it is laid up. Where faults are cut out, the fabrics are overlapped a few inches at a mark on the cutting table that corresponds with the cutting line between the garments.

A batch ticket is placed on the fabric between the marks on the table at every 36th layer. The procedure allows 650 to 750 doz. to be cut at each spread. Each pile of shirts has seven layers of 3-doz. bundles separated by tickets.

Each size of shirt has a different-colored ticket to provide easy recognition for the operators. Every operation is listed on the ticket, and the operator tears off the section relating to her operation as the goods are processed. The stubs are collected by the operator and sent each day to the office for payroll figures.

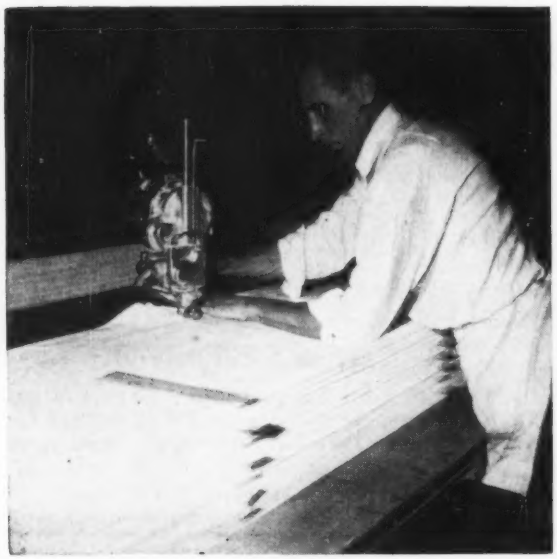
The bottom layer of cloth is fastened to the cutting table by nylon adhesive tape at each end to prevent creeping. After being marked with a soft lead pencil, the shirts are cut with an oscillating knife.

Six Collarettes Are Cut at Once

A special machine made by Utica Novelty and Mill Specialty Co. is used to cut six rolls of collarettes at once. A bleached fabric roll is slipped on a bar on a vertical capstan. As the capstan rotates, the fabric is fed to an arm where six circular cutters, arranged side by side, cut the neck-band fabric and roll it into six separate rolls. Cutters can be attached to cut up to 10 strips. Strip width can be varied.

The 3-doz. bundles of T-shirts are tied up and placed in open-sided trucks to be moved to the seaming section. Seaming-machine rows have various operator numbers according to the length of time taken for each operation. Manager Albert Allran has carefully worked out the operations so that no operators wait for work and no goods pile up awaiting operators.

(*Continued on page 109*)



CLOTH KNIFE cuts through the 504 individual thicknesses of fabric. Fabric ends overlap between marks on the cutting table.

COLLARETTE MACHINE cuts six pieces of neck-band fabric at once. The circular knives can be adjusted to cut various widths of cloth.

SEAMING MACHINES are laid out to allow goods to flow forward at all times. Garments are folded for the next operation.

PRESSING MACHINE is continuous in operation. Press bed is electrically heated. Tension and heat are adjusted for style and size.

TUFTING MACHINE is tended by two operators and a mender. Another operator, the creeler, handles the double-deck creel from which yarn is fed by tube to the tufting needles

TUFTED-COTTON CARPETS
Require New Machines, New Methods

► Instead of a loom, a tufting machine is used to make 14-ft. carpeting at about a yard a minute.

► Latex coating and curing are other specialized operations. Dyeing is done conventionally but on a larger scale.

► Here's how a famous name in rugs—Magee—went into the cotton-carpeting business.

By GEORGE M. MOISSON, Assistant Editor, TEXTILE WORLD

A FAIRLY RECENT DEVELOPMENT in the carpeting field, the tufted cotton carpet, has hit the public fancy and has made new machinery and new techniques necessary.

Magee Carpet Co., Bloomsburg, Pa., has set up a cotton department completely separate from the rest of the mill. All production and all experimentation except the laboratory work is done under one roof.

Only single-color piece-dyed shades are being made at present. High- and low-loop effects are possible, however, and sculptured two-tone designs may be developed.

Tufting

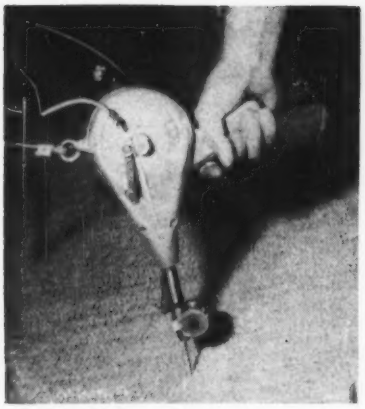
The base fabric is of burlap. The fabric is fed to a 168-in. row of 896 tufting needles ($\frac{3}{16}$-in. gauge) on a machine made by Super-Tufter Co., Chattanooga, Tenn. At 100% efficiency, production is 45 ins. per min.

Magee also has a cut-pile machine, a variation of the loop-pile machine in which the loop is cut as soon as it is formed by the needle.

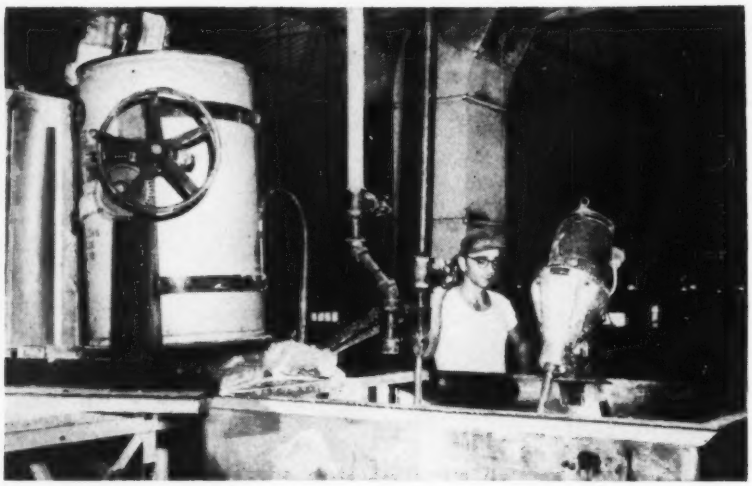
On-the-spot repairs of defective loops is a simple and fast operation with a mending gun in the hands of an experienced operator.

Rubberizing

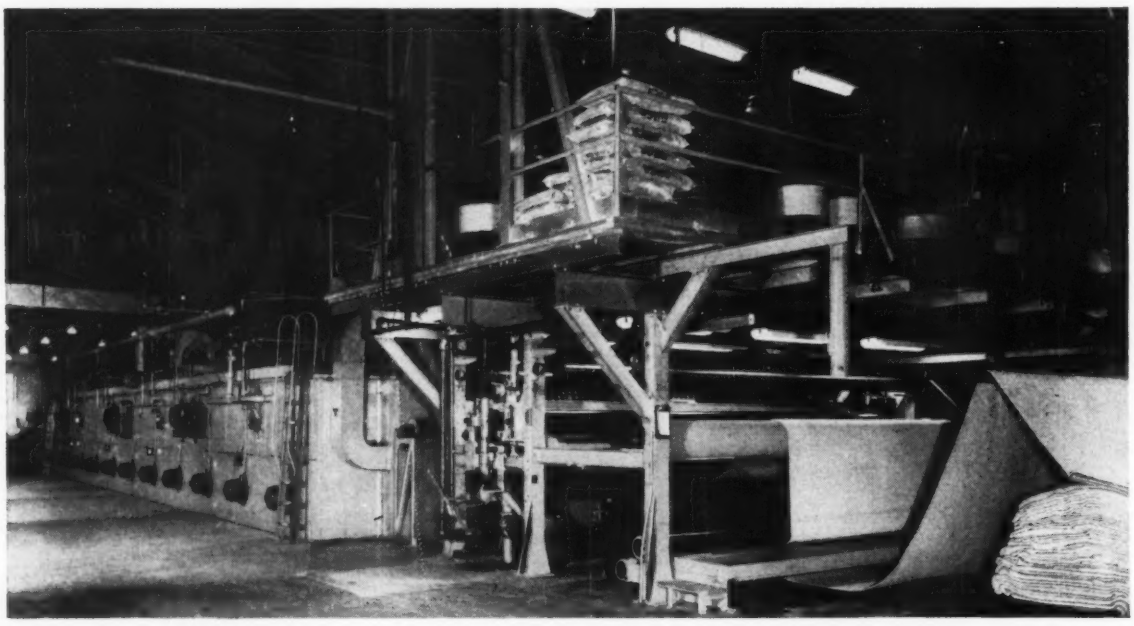
Rubberizing, which Magee considers essential to the production of perfect carpeting, is the next step. A back coat of specially compounded



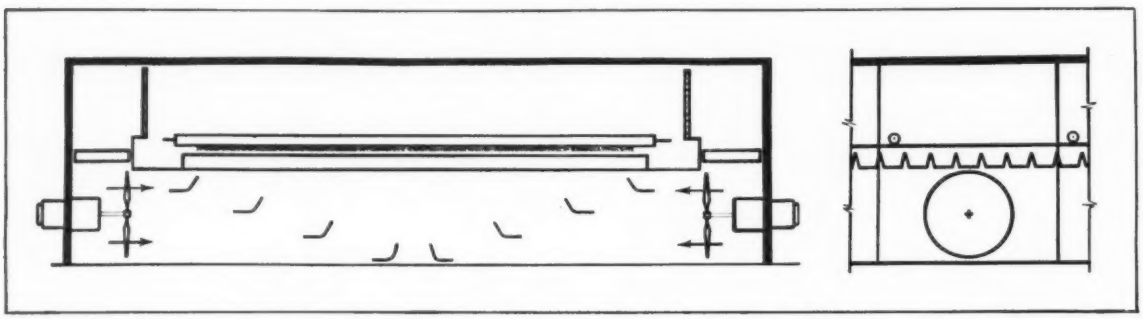
MENDING of break-outs is done quickly with this mender as the carpeting passes over an inspecting frame in front of the tufter. Theoretical production of the tufter is 45 ins. per min.



LATEX EMULSIONS for back coating of the carpeting are prepared with this equipment located directly above the coating section at the entrance to the dryer.



DRYER has a dual-purpose feed end to either apply latex coating or beat dyed carpet before drying.

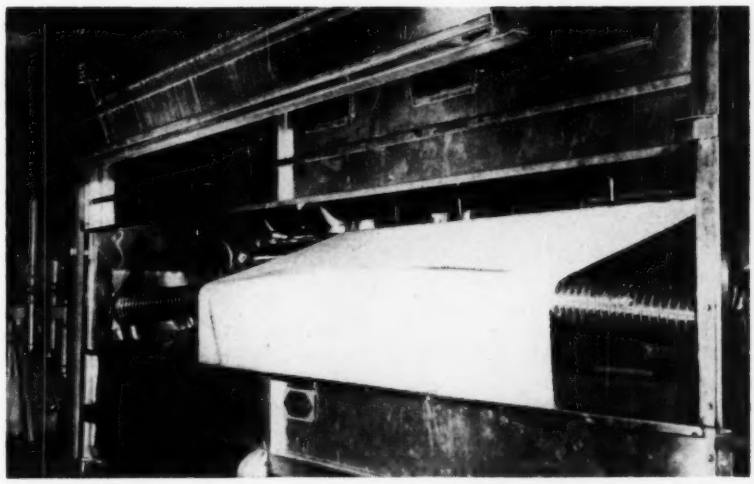


CARPETING FLOATS on a cushion of heated air, and the latex compound touches nothing until it is dry. Gas-fired heating units supply heat to dry latex at 8 to 9 ft. per min. Wet, dyed carpeting dries at 4 to 5 ft. per min.

latex-plastic is applied to hold the loops firmly in place and to serve as an antislip finish. Compounding of such backing materials takes into consideration these factors: (1) ease of curing, (2) stability to boiling dye liquor, (3) effect on dyestuffs, (4) effect on hand, (5) effect on tensile strength, (6) effect of ageing, and (7) efficiency in loop holding and antislip qualities.

Curing

After coating, the carpeting must not be allowed to touch any surface until the latex is cured. Proctor & Schwartz, Inc., has designed a "floating carpet" dryer for the job. As used at Magee, the dryer serves a dual purpose—curing the coating and drying dyed goods. Electronic controls safeguard the operation of the dryer.



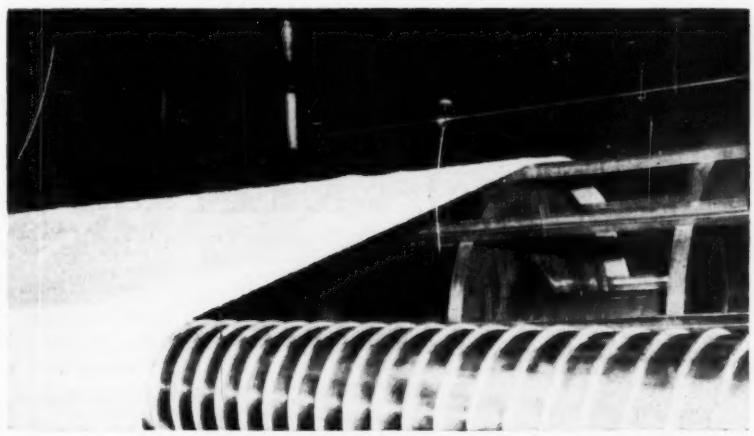
OPEN-WIDTH DYEING, in this latest-type dye kettle with special spreader, is gentle and easy on the tufted goods. Latex, applied before dyeing, holds tufts in place and produces an undamaged, high-quality carpet.

Dyeing

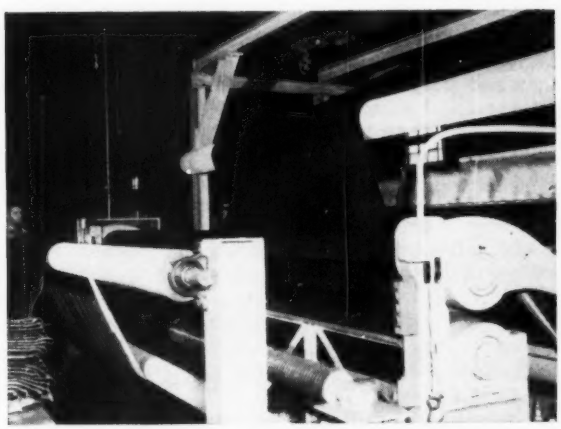
Dyeing, in itself, is no problem with cotton carpeting. The procedures and dyestuffs used are standard, and modern equipment eliminates difficulties. Gentle handling is essential to quality.

Dyeing takes place, following curing, in open-width kettles designed by Rodney Hunt Machine Co. A one-piece pneumatically operated door provides the closure for the huge 20-ft. kettles. A Birch spreader keeps the unwieldy carpeting centered in the kettle during dyeing.

The goods, which are removed from the kettle by a power-driven roll and plaiter, are then pushed on a dolly to the squeeze-roll extractor and beater. Drying follows, in the same dryer that is used to dry the latex coating. Inspection and packaging complete the operations.

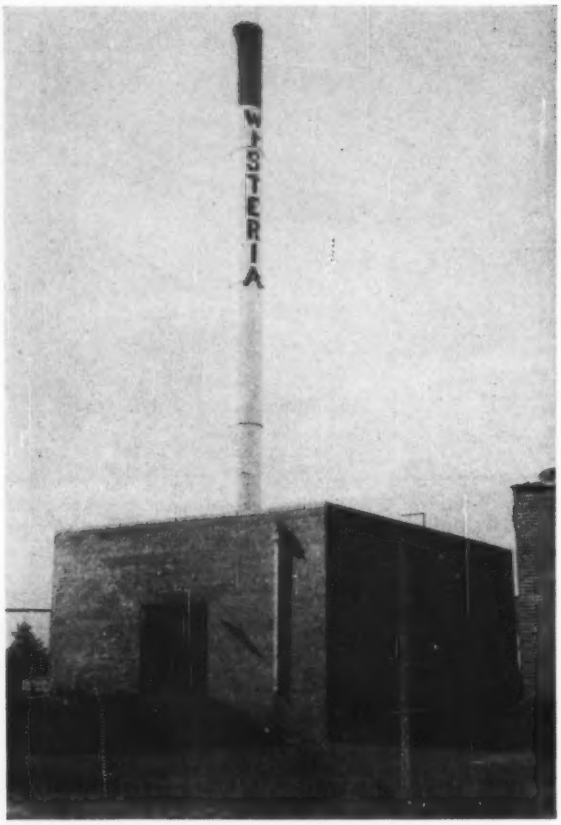


CENTERING DEVICE works by feel. Pendant feelers are set close to the edges of the centered goods. When a feeler is tripped, the fluted conic roller on that side stops turning and causes the carpeting to move the other way until the circuit is open again.



CARPETING ENTERS WRINGER over a spreader bar at 4 to 8 yds. per min. Extraction efficiency of this squeeze-roll extractor is about 100% moisture content. A nylon-strap beater raises the pile.

INSPECTION before packaging involves minor repairs such as clipping and trimming imperfect loops or cutting uncut loops in the cut-pile carpeting.



STEAM-PLANT STACK is about 65 ft. above the boiler breeching. The brick building is 40x42x22 ft. and has a concrete floor reinforced with steel rods.

Get Cost Data From These STEAM-PLANT Tests

▶ Small textile steam plants cannot afford the elaborate recording instruments used in large steam plants. Less-expensive tests can be made to calculate the average horsepower delivered by a boiler and the average cost per 1,000 lbs. of steam. The results show whether your boilers are in good shape or not and what you should concentrate on to improve efficiency.

By **SAM BOYER,** Wisteria Hosiery Mills, Inc.

MANY STEAM PLANTS remain the most neglected departments in the mill. Boiler rooms may be neat and clean, and maintenance may be splendid; but adequate combustion controls have rarely been installed, and operating losses consume a large proportion of fuel costs.

The average mill cannot afford elaborate recording and controlling instruments, but simple tests can provide steam-cost data that are modern and practical in every respect.

Here's how Wisteria Hosiery Mills, Gastonia, N. C., determined boiler efficiency and data for cost purposes.

How Our Tests Were Conducted

Our two boilers are two-pass, return-tube, refractory-lined models rated at 125 boiler horsepower each. They were put into service in 1947, and each has an equivalent steam flow of 4,312.5 lbs. per hr. Each boiler is fired with a screw-feed, single-rotor stoker controlled by steam pressure through an on-off control.

No additional controls were used in the test, but this auxiliary equipment was used:

1. A high-temperature water meter in the boiler feed-water line to measure water entering the boiler
2. A platform scale to weigh the coal burned during the test
3. Mercury thermometers to measure the temperature of the outside air, boiler-room air, and feed water
4. A potentiometer equipped with a thermocouple to measure the temperature of escaping flue gases
5. An Orsat tester to check the carbon dioxide in the flue gases
6. A vernier U-tube to measure forced-draft pressure, over-fire vacuum, and stack vacuum

The 8-hr. test showed that 2,817 lbs. of coal was burned to evaporate 28,613.11 lbs. of water. Broken down, these data reduce to 3,577.638 lbs. of water per hr., or 10.157 lbs. of water per lb. of coal. Hourly coal consumption was 352.125 lbs., or 12.806 lbs. per sq. ft. of the 27.5-sq.-ft. grate area.

With coal at $9.98 per ton, the cost per 1,000 lbs. of water evaporated (or steam produced) is $0.49127. These figures do not give the developed capacity of the boiler; so the rating must be converted.

Convert Boiler Horsepower to Heat Units

The term, "boiler horsepower", is becoming obsolete, but many boilers retain this term for rating. It is defined by ASME as the equivalent evaporation of 34.5 lbs. of water per hour from and at 212° F. Expressed in heat units this is—

$$970.3 \text{ Btu.} \times 34.5 = 33{,}475 \text{ Btu.}$$

970.3 Btu. is the latent heat of evaporation for 1 lb. of steam from and at 212° F. A factor is needed to convert the rating from actual conditions to what they would be from and at 212° F. The "factor of evaporation" is the total heat in 1 lb. of steam as it leaves the boiler, less the heat in 1 lb. of feed water, divided by 970.3.

The steam pressure in the boiler was 98.55 lbs. and the temperature 336.94° F.; so each pound of steam had a Btu. content of 1,188.55, according to tables showing the properties of saturated steam.

The feed-water temperature was 127.78° F. with a Btu. content of 95.92.

$$\therefore \text{ Factor of evaporation} = \frac{1188.5 - 95.92}{970.3}$$

$$= 1.1271$$

The actual water evaporated during the test was 28,613.11 lbs. at 127.78° F.

$$\therefore \text{ Equivalent evaporation} = 28{,}613.11 \times 1.1271$$

$$= 32{,}249.84 \text{ lbs. of water}$$

$32{,}249.84 \div 8 = 4{,}031.299$ lbs. equivalent evaporation per hr.

Rated boiler capacity = 4,312.5 lbs. per hr.

Boiler-Room Test Data

Weight of coal burned	2,817 lbs.
Total steam temperature	336.94° F.
Feed-water temperature	127.78° F.
Total water evaporated, actual (464.5 cu. ft.)	28,613.11 lbs.
Actual water evaporated per pound of coal burned	10.157 lbs.
Total equivalent evaporation from and at 212° F.	32,249.84 lbs.
Equivalent evaporation per pound of coal burned (F&A 212° F.)	11.448 lbs.
Steam pressure in boiler by gauge (average)	98.55 lbs.
Temperature of flue gases leaving boiler (average)	542° F.
Temperature of air outside boiler room (average)	62.2° F.
Pit pressure, ins. water (average)	0.179
Over-fire draft, ins. water (average)	0.0663
Last-pass draft, ins. water (average)	0.186
Draft loss, ins. water (average)	0.1197
CO^2 in flue gas (average)	10.048%
Coal burned per hour (average for 8 hrs.)	352.125 lbs.
Actual water evaporated per hour (average)	3,576.638 lbs.
Rating developed (average)	93.477%
Equivalent evaporation from and at 212° F. per hour (average)	4,031.229 lbs.
Coal burned per hour per square foot of grate area	12,806 lbs.

∴ Equivalent evaporation per hour of the rated boiler capacity

$$= \frac{4{,}031.299 \times 100}{4{,}312.15}$$

$$= 93.477\%$$

How Boiler Efficiency Is Calculated

To find the steam-boiler efficiency, the potential energy of the fuel must be converted into heat energy, which is transferred into steam. Efficiency is measured by the ratio of Btu. per pound of fuel absorbed in generating steam, divided by the total Btu. per pound of fuel.

The test showed that the amount of heat energy absorbed by 1 lb. of steam was 1,092.63 Btu. Each pound of coal with a 14,250 Btu. content produced 10.157 lbs. of steam having a total content of 11,097.742 Btu.

$$\therefore \text{ Boiler efficiency} = \frac{11{,}097.742}{94{,}250}$$

$$= 77.8\%$$

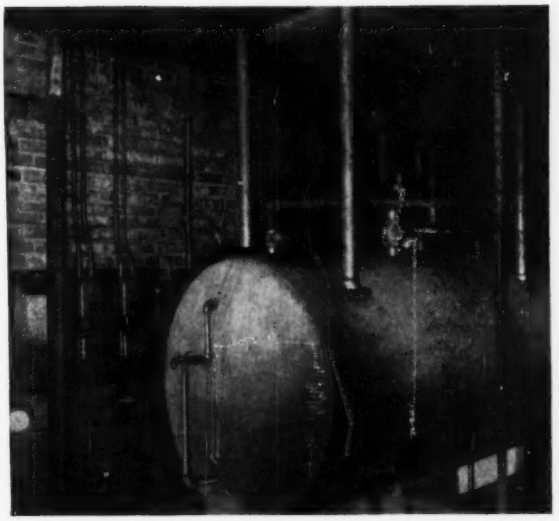
This high efficiency and economical operation is a result of firemen being trained to maintain correct proportions of air to burn the type and amount of fuel being fired. By observing the fire, they adjust the fuel feed to meet various load conditions and hold the over-fire draft to a minimum to prevent excessive stack losses and yet have necessary air supply for proper combustion.

Some stack losses cannot be avoided, however, without automatic-damper regulation.

This boiler operating schedule has been put into effect on each 8-hr. shift to insure high economy:

1. Ashes are removed.
2. Coal hoppers are refilled.
3. Boiler is blown down for 30 secs.
4. Water column and gauge glass are blown down.
5. Soot is blown out.
6. Boiler room is swept clean.

The boiler tubes are swabbed once a month, and feed-water treatment is applied under the direction of a laboratory.



BOILER EFFICIENCY is high on these two 125-hp. boilers. Both boilers are insulated with a 1-in. layer of 85% magnesia asbestos and are equipped with rotary-type soot blowers.

CONDENSATE RECEIVER has a ¾-in. layer of 85% magnesia asbestos, and 100% condensate is used for boiler feed water.

Approximate Fuel Analysis

	As received	Dry
Moisture	2.84%	5.31%
Volatile matter	35.52%	36.56%
Fixed carbon	56.48%	58.13%
Ash (softening temperature 2,700° F.)	5.16%	5.31%
Btu. per pound	13,873	14,250

PRODUCTION CONTROL

At Avondale

IS BASED ON MILL-ORDER SETS

- Mill orders are individually controlled from warping through shipping by a production-control department in each mill
- The set, which is the most economical yardage to warp, is the production unit
- The production-control department keeps tabs on a mill order with tickets, tags, yardage records, and expediters

By **THOMAS B. WINSTON,** Assistant Editor, TEXTILE WORLD

A CENTRALIZED PRODUCTION-CONTROL and planning department at Avondale Mills, Sylacauga, Ala., coordinates production with sales. Long-range planning is a function of top management, but every mill in the Avondale chain controls its own production with a specialized staff.

Detailed scheduling begins at the warper and carries through to the shipping department. The production unit is the warp set, which is the most economical yardage to warp (using 28,000-yd. cones, the warp set is 14,000 yds.); and mill orders are written in terms of the production unit. Production is organized on a rigid time schedule for each set.

The program was organized under the direction of Peter M. Fekula, a consultant, and John C. Fay, a vice president of Avondale. Representatives of Remington Rand helped set up wall-panel Sched-U-Graph boards for the production-control rooms.

Mr. Fay states that Avondale has fewer people working on production control now than before the program was started. He says, "Every mill has quite a few men on production control whether they're officially called planning men or not. Most mills use them like bird dogs. Our production

CONTROL TICKETS for a mill-order set are reproduced from a master card on this Ditto machine. The data are arranged on the master card so that sections can be masked off to reproduce all tickets from the same master card.

WARPING is controlled by a set of warper tickets (arrow) sent to the warper room when a mill order is issued. The number of ends for each beam is shown on each ticket. On the average, there are 13 beams to a mill-order set.

DYEING INSTRUCTIONS are given on each ticket by a dye code. The dyer initials the beam ticket after dyeing. Then the ticket is returned to production control from the slasher room after the complete set has been slashed.

people concentrate on material and machines in a positive manner."

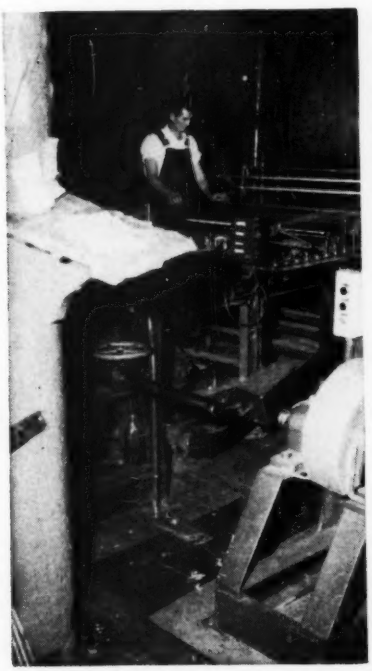
Production Control at Eva Jane

Eva Jane, with 1,440 looms—36-in. E's, 40-in. E's, 60-in. E's, 44-in. X-2's, 54-in. X-2's, 60-in. C&K's, and 64-in. P's—is Avondale's largest mill. The same scheduling system is used for all looms and styles. Production control is handled by a seven-man staff.

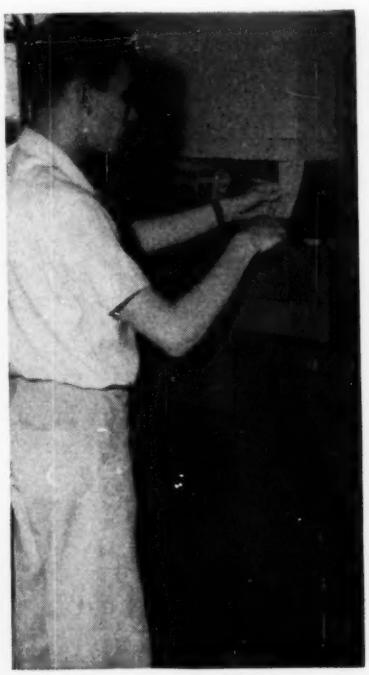
The production-control office keeps a list of the mill-order requirements per week for each cloth style and loom type. The mill keeps a three-week supply of orders on hand; so mill orders are requested from the Avondale sales office (Southeastern Cottons) three weeks before the release date. Every Monday the local office sends a teletype request to New York for mill orders to meet the mill requirements. Staple goods such as denims are often handled in 50-set units.

Mill orders are requested for a mean release day of a specific week, but the mill sets are not released all at once: they are released according to the need for warps to keep the production schedule going. Warp requirements are governed by the

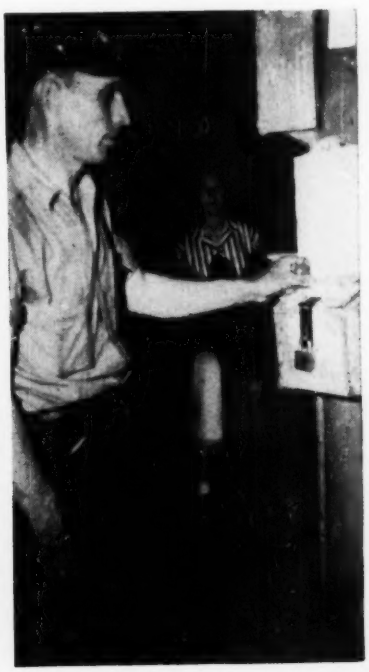
"EVERY MILL has quite a few men on production control, whether they're officially called planning men or not," says John C. Fay, vice president of Avondale Mills. "Most mills use them like bird dogs. Our production people concentrate on material and machines in a positive manner."



SLASHING is the pivotal control point and mill orders are issued on the basis of the need for warps to meet loom run-outs. The slasher tender puts loom tickets with detachable loom-start stubs on the warp beams at this point.



THE SLASHER CARD is moved to the weaving drawer after all the warp beams in a mill order have been slashed. This file of master cards is an additional check on the progress of a mill order. (The schedule board provides more detailed control).



THE LOOM-START STUB from a new warp and the ticket from the old warp are dropped in a locked box. The loom number is written on the stub and ticket by the warp man. Boxes are checked every morning by the production-control expediter.

number of warps running out of the looms and the number of warps on the floor, tied and not tied. The slasher room keeps up with the warp situation, and every morning the slasher room sends the production-control department a list of the daily warp requirements broken down by style. The production-control manager checks the slasher-room list against his records and determines what pattern is in the shortest warp supply; then he tells his staff to issue a mill order in that pattern and style.

Manufacturing requirements for each fabric style are sent to the mill on a technical data sheet. From this technical data sheet, a manufacturing data sheet is made out. These data include the warped, woven, and finished yards per set, the section beams and warp beams per set, and the manufacturing lead times for each process.

For instance, for a certain sateen ticking, the set calls for 14,000 yds. warped, 12,500 yds. finished, 13 sections beams, and four warp beams. Weaving on 64-in. XP looms, the mill begins delivery 18 days after a mill order is released, and shipment is completed 55 days after the release date.

To simplify scheduling, Eva Jane uses a time graph marked off in tenths of an inch. With the mill operating on a five-day week, lead time is figured 10 days to the inch, and vertical lines on the graph shows the manufacturing lead times for warping, dyeing, and slashing, warp storage and tying in, begin-delivery date, total weaving time, finishing and inspection, and grading and packing. The actual progress of a set can be checked against the time schedule at any time.

Warping Through Weaving Controlled by Beam Tickets

Detailed production control is necessary for warping through weaving because of the many separate beams. Every section beam and warp beam at Eva Jane carries a ticket with all the production information necessary to identify it. When a mill order is issued, a complete set of tickets (called a mill-order set) is reproduced on a Ditto machine from a master card. The data are arranged on the master card so that sections can be masked off to reproduce different tickets for section beams and warp beams.

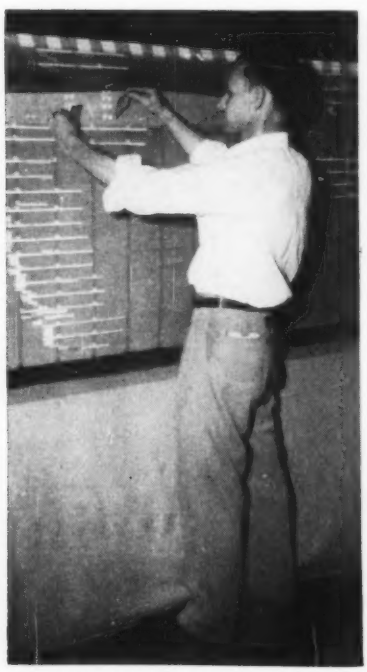
The data on the master card are taken from the mill order and manufacturing data sheet. These data include the release date, begin- and finish-delivery dates, cloth construction, dye codes, and the number of section and warp beams in the set. A file of old master cards for each style is kept for convenient copying, but the data are checked against the manufacturing data sheet to make sure the information is correct.

Copies of the master card are run off for every supervisor concerned with production and other copies are run off for the use of the production-control office: a progress card to go on the schedule board, a production score card, and file cards. Thus, everyone concerned with the mill order knows what he is to do and when.

Section-Beam Control

When a mill order is released, a set of warper tickets is sent to the warping room. Each ticket shows the number of ends; and each has a place for the warper's initials, the weight of the section beam, and the date warped. After the beam is warped, the ticket is tucked under a strand of yarn.

The warper ticket also gives the



SCHED-U-GRAPH BOARDS show the progress of mill orders through weaving. The loom-start stubs are placed beside their mill-order progress cards, and the loom tickets are matched with their stubs. Slasher tickets are put behind the progress card.

CLOTH DOFFS are collected by each mill order in the cloth room and are sewn together on the brusher. Yardage is listed by loom type, style number, and mill-order number. This information provides production control with an accurate check of yardage woven.

CLOTH ROLLS are weighed and tagged, and a record of the tag numbers is sent to production control. The rolls are finished in numerical sequence. If a tag is not returned from the finishing room in sequence, a check is made.

dyeing instructions for the beam. A dye code is reproduced on each ticket, and a particular code number is circled to show the particular requirements for the beam. The production-control man who makes out the tickets makes sure the number of tickets marked with a particular code number agrees with the number of beams in the set with that code number. The tickets are then numbered to prevent mixups. A place for the dyer's initials is provided on the ticket.

A file of duplicate master cards is kept in the production-control office, and when the beam tickets are returned to the control office after slashing, the duplicate master cards are stamped and sent to the standards department as a dye-materials control record.

Besides the individual tickets to go by, the dyehouse has a copy of the master card. Also, the dyehouse gets a report of the mill orders as they are received, and these reports give the dyehouse three weeks' notice to lay in supplies and anticipate its over-all schedule.

The dyehouse also has the job of dyeing colored filling. Eva Jane has 27 active colors running on 250 C&K looms. Colored filling is ordered by the warping-through-weaving expediter on the production-control staff. Once a week, and sometimes twice a week, he orders enough poundage to cover 45 days of weaving. He figures the poundage requirements from the loom projection chart.

Loom-Beam Control

Control of the warp beams from the slasher to the loom is the critical phase of production control. Warps are put on the looms in mill-order sequence, and a warp report prepared by the expediter is put in the weave room every day for the warp men to work by. This report lists in mill-order sequence the warps available, tied and untied.

If the warp men need warps that have been slashed but not tied in, the tying-in room can easily adjust itself to the situation; but if mill orders haven't been issued for warps that are needed, production bogs down. Slashing is the pivotal process in keeping enough warps on hand, and for this reason mill orders are issued according to slasher-room needs. Warping is done set to set as the mill orders are issued.

The slasher room sends tickets for the beams slashed to the production-control department, and the slasher operator attaches a loom ticket to each warp beam. The loom ticket has a stub called a loom-start stub. When the warp is put in a loom, the actual loom number is written on the ticket and stub. Then the stub for the new warp and the ticket from the old warp are put in a box to be picked up by the production expediter.

Tickets Are Put On Sched-U-Graph

The tickets go up on the Sched-U-Graph boards as they return to the production-control office. These boards are arranged on the walls of the office according to loom type; production is not controlled by the individual loom but by groups of looms on a warp set. Each board has a hundred pockets to hold the progress cards, which are put up when the mill orders are issued, and the tickets. The boards not only provide an easy way to keep up with production; but according to Avondale, the boards keep the production-control personnel constantly aware of production progress in both a visual and psychological sense.

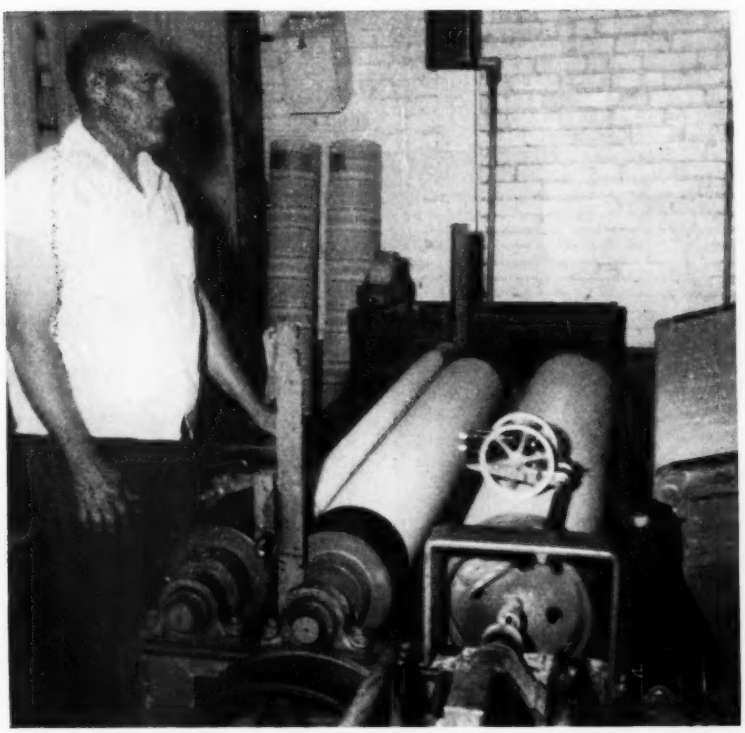
When the slasher ticket is returned, the ticket is placed behind the progress card. When all the beams in the set are in looms, the progress card is marked and the ticket is filed away. In addition to this control, a running account of beams slashed is kept in a ledger book by the date of slashing.

When the loom-start stubs and old loom tickets are picked up every morning, the stubs are placed beside their respective progress cards and the old tickets are matched with their corresponding stubs, which, of course, are already on the boards. When a stub and ticket are matched, a red edge indicates that the final cloth doff has gone to the finishing department.

In addition to the schedule boards, production control is aided by a file of master cards. These cards are kept in a drawer called the "slasher drawer" until all beams in the set have been slashed. When the warp beams are completed, the card is moved from the slasher drawer to the "weaving drawer." (The progress card on the schedule board is marked at the same time). When the last loom ticket returns to the control office, the master card is taken from the weaving drawer and filed with the set of cards from the board.

The warping-through-weaving expediter makes sure that the beams are

(Continued on page 196)



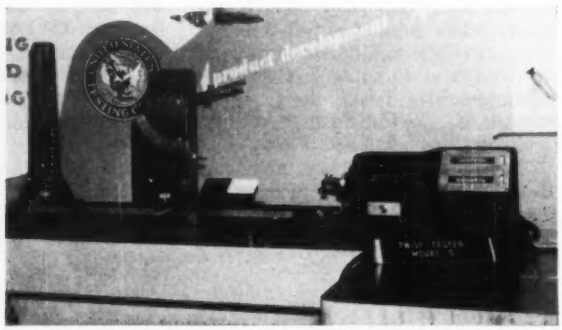
A YARDAGE RECORD is kept for each cut on the back of a tag and for the total yardage for the roll on the front. This tag is placed on the roll at the brusher and helps to eliminate short lengths.

BLENDS Receive Most Attention At TRI Symposium

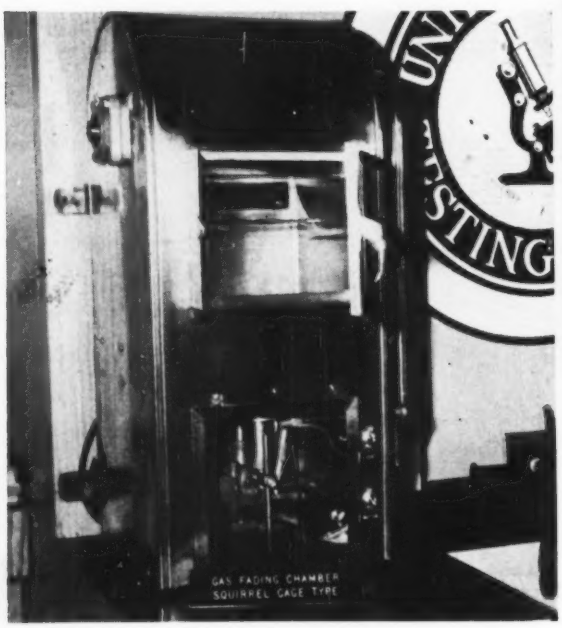
► Blends and the problems caused by injudicious selection of blending components were emphasized at the annual meeting of the Textile Research Institute in New York

► Exhibits featured several new instruments and interesting displays of blended fabrics

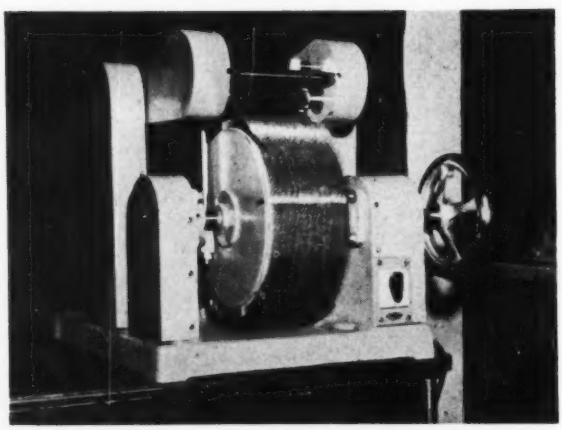
CSI STOLL FLEX TESTER is being discussed by Bill Newell (right), TW's consulting editor on research, and Henry Bultman, of Custom Scientific Instruments, Arlington, N. J.



TWIST TESTER MODEL C has a motor-driven yarn clamp, a device for measuring elongation of untwisted yarn, automatic twist counters, and a foot control pedal. U. S. Testing Co., Inc., Hoboken, N. J., will deliver it for $550.



SQUIRREL-CAGE GAS-FADING MACHINE is a new design of the machine shown in 1951 [TW, Jan. '51, p. 150]. U. S. Testing Co. Inc., Hoboken, N. J., is making the instrument. Price: $625.



USDA MECHANICAL COTTON FIBER BLENDER is used for blending 10-gm. samples for laboratory tests [TW, Dec. '51, p. 154]. Thwing-Albert Instrument Co., Philadelphia, Pa., is offering the instrument for $2,095.

Fabric Tests Reflect BLENDING EFFECTIVENESS

▶ Here is more data on the effects of blending with nylon, Orlon, and Dacron. This information supplements the earlier report by Dr. Quig [TW, Sept. '53, p. 129]

By J. B. QUIG and R. W. DENNISON
E. I. du Pont de Nemours & Co., Inc.

Why Blend?

Each fiber has some unique property or combination of properties. Each fiber should be used, either alone or in combination, where its unique characteristics contribute most to fabric performance. The fabric manufacturer must define what properties he wants in a particular fabric; then through experimental blending, treatment, and finishing, he must develop a satisfactory product.

The thermoplasticity and relative water insensitivity of the new fibers contribute in large measure to their important functional properties. On the other hand, the water sensitivity, dye acceptance, and other desirable properties of natural fibers and fibers made from natural polymers contribute to their functionality. An important reason, then, for blending is the negation or absorption of any disadvantages peculiar either to natural or synthesized fibers.

Extensive tests on certain fabric constructions (details available for reference at the end of this article) have established these facts, outlined by fabric properties.

Effect of Blending

✦ Tear Strength

Adding Dacron or nylon to rayon, wool, acetate, or cotton increased the tear strength in every case. Orlon increased tear strength somewhat when blended with acetate or wool.

✦ Tensile Strength

Fabric tensile strength was increased by Dacron or nylon only at concentrations above 50% and was actually decreased by additions of less than 50% of the stronger fibers. Orlon staple added to rayon or cotton slightly decreased fabric strength.

Dacron, nylon, or Orlon, when blended with acetate or wool, increased tensile strength in almost a direct proportion.

✦ Abrasion Resistance

A wet flex test made on a Stoll tester was chosen for measuring resistance to abrasion, since the precision of data was found to be much better for all types of fibers when tested wet.

For every fabric type considered, nylon showed outstanding increases. Orlon aided little or none.

Similar changes in abrasion resistance of cotton were found for denim-type fabrics and knitted shirts and socks. The blends containing nylon had the highest resistance to abrasion. The behavior of nylon is similar in blends with wool in tropical-type fabrics and also in the 18-oz. Quartermaster fabric for uniforms.

Crease Recovery and Stiffness

✦ Normal Humidity

A combination of several physical measurements is required to assess the resilience and handle of a fabric. Crease recovery and stiffness were determined. The crease recovery was measured by the Monsanto technique and stiffness was computed from the double cantilever or "hanging heart" technique.

In general, crease recovery changed in approximately a straight-line manner with fiber composition. The crease recovery for a blend fell between that for control fabrics of the different fibers and in approximate proportion to the fiber concentrations. Dacron caused a rapid increase in crease recovery when added to rayon. Similar trends were found for mixtures of the synthetic fibers with acetate and with wool, although the contrast between the synthesized and the latter fibers was progressively less.

At 65% r.h., 75% Dacron was required to raise the crease recovery of rayon to the level of premium-grade wool fabrics, and 50% Dacron was needed to raise the rayon to the level of commercial rayon-acetate resin-treated suitings. With acetate, 50% Dacron was sufficient to reach the level of wool. About 75% Orlon or nylon was indicated to bring the crease recovery of rayon up to that of commercial resin-treated suitings.

In general, the stiffness of rayon was raised by Orlon, was unchanged by Dacron, and was lowered slightly by nylon. Stiffness of acetate was raised by Orlon and Dacron and essentially unchanged by nylon. Wool was changed only slightly by Orlon, Dacron, and nylon.

In general, the synthetic fibers contributed significantly to the dimensional stability of blended fabrics. The extent of contribution varied with the fiber types and depended, at least in part, on the relative moisture insensitivity of the component fibers.

✦ High Hudimity

All fabrics showed lower crease recovery at 90% r.h. than at 65% r.h. Blended fabrics containing the synthetic fibers maintained a greater recovery than fabrics composed of 100% rayon, acetate, or wool.

Cycling of humidity is related to

(Continued on page 218)

Adapted from a paper presented at the 24th annual meeting of Textile Research Institute.

TRI Officers for 1954

President, re-elected
Percival S. Howe, Jr.
President, American Thread Co., Inc.

Vice president, chairman of executive committee
Sydney M. Cone, Jr.
Vice president, Cone Mills Corp.

Treasurer, re-elected
Dr. Donald H. Powers
Director, Hudnut Research, Warner-Hudnut, Inc.

Secretary, re-elected
Paul C. Alford, Jr.
TRI

How To Use NEW DYE TECHNIQUES Effectively

▸ The very properties that make the new synthetics valuable contribute to their dyeing problems

▸ High-temperature and carrier-dyeing techniques will continue to be necessary

By PAUL J. CHOQUETTE, Coordinator of Research, General Dyestuff Corp.

EXCELLENT PROGRESS has been made in meeting many of the requirements of dyeing the newer synthetic fibers, and further improvement can be anticipated. This progress is a result of fine cooperation of fiber, dyestuff, and auxiliary-chemical producers with dye-application specialists, research chemists, and the dyers and finishers of the textile industry. No simple solution will be available to meet the requirements of all fibers. It will continue to be necessary to screen the various classes of dyes and to consider the newer methods of dyeing. As the facts of these dye-application studies are made available to researchers in dyestuff syntheses, it is expected that present ranges of dyes will be extended to meet particular end-use requirements. Considerable progress has already been made in this direction and can be expected to continue.

These new concepts of dye application and their uses in dyeing some of the newer synthetic fibers change from time to time. Here are some of the latest techniques.

High-Temperature Dyeing

✦ Dacron

Dacron dyeing is an example of the improved penetration and color value obtainable at elevated temperatures. At 250° F. and with selected disperse dyes, this fiber can be dyed to the same depth as acetate and even heavier than nylon. Suitable anthraquinone-class dyes that meet the fastness requirements of the suiting trade are now available. Dyeing is normally carried out on stock, top, or yarn under pressure in closed circulating machines. Navy blue and black shades can be dyed with a diazotizable disperse dye and developer. Dyeing of the two components is carried out at 250° F., followed by diazotization at atmospheric pressure and lower temperatures (140 to 180° F.). Coupling within the fiber proceeds simultaneously. In general, no sublimation problem during pressing will be encountered in properly dyed light to medium shades. For dark shades, pressing temperatures of 250 to 260° F. should not be exceeded.

✦ Orlon

Dyeing of the acrylic fibers is improved in many cases through the use of higher temperatures. Orlon 81 has poor affinity for selected basic or vat dyes when applied at temperatures under 212° F. Dyeing at 250° F. yields excellent results with both types of dyes. Although Orlon 42 dyes more readily than Orlon 81, a wide range of acid dyes with improved fastness is available when applied at 230° F. by the cuprous-ion method.

✦ Acrilan

Acrilan is normally dyed with acid or chrome colors at conventional temperatures. In the case of chrome dyes, elevated temperatures (240 to 250° F.) speed up and complete the chroming more readily. A complete range of vat dyes can be applied to Acrilan stock at temperatures of 230 to 240° F. to yield shades of outstanding fastness properties. Certain vat dyes are faster to light on the Acrilan fiber than on the cellulosic fibers.

(*Continued on page 214*)

Adapted from a paper delivered at the 24th annual meeting of Textile Research Institute.

High-Temperature Dyeing

The degree to which individual fibers respond to higher dyeing temperatures varies. This temperature may be limited by excessive shrinkage or a harshening of the fiber. Closed jigs or kettles that permit temperatures up to 208 to 210° F. are recommended. This technique in the dyeing of nylon has been proved, and it is even more important for the more hydrophobic fibers. High-temperature dyeing is normally understood as the operation carried out in closed pressurized equipment where temperatures up to 250° F. are obtained.

The following chart indicates temperatures that have been used on various fibers to obtain particular end results:

Fiber	Method of dyeing	Temperature	Remarks
Dacron	Disperse dyes Diazotizable disperse dyes	250° F.	Excellent color value and penetration
Orlon 81	Selected basic dyes	250° F.	Excellent color value and penetration
	Vat colors	250° F.	Improved color value and penetration
Orlon 42	Acid colors by cuprous-ion method	230° F.	Larger range of dyes and better wetfastness
	Vat colors	230° F.	Bright shades of excellent fastness
Dynel	Disperse dyes	215 to 220° F.	Shorter dyeing period, improved penetration
Acrilan	Chroming acid top-chrome colors	250° F.	More rapid and complete chroming
	Vat colors	230 to 240° F.	Improved color value and penetration
Wool	Acid and chrome colors	225° F.	Shorter dyeing time
Nylon	Neutral-dyeing premetallized dyes	250° F.	Improved penetration, outstanding washfastness

How To Weave Drills and Twills

▶ Almost any type of loom can be used to weave first-quality drills and twills. The important thing in weaving the fabrics is setting the looms correctly. Use these loom settings to—

- **Form a sharp twill line**
- **Set the warp shed**
- **Reduce the beat-back**
- **Stop broken picks and other defects**

By W. C. WESTBROOK
Consulting Editor, TEXTILE WORLD

MOST OF THE CURRENTLY WOVEN types of drills and twills in both all-cotton materials and cotton and synthetic-fiber blends can be woven efficiently on Draper E, X, X-2, and XD model looms.

Both cam and dobby harness motions give good results on these types of fabrics.

Roll-top cam motions can be replaced with a spring-top motion and auxiliary cams to weave up to six-harness materials.

Get Sharp Twill Lines With These Loom Settings

On dobby looms, weaving performance can be improved by running six or eight harnesses instead of the three or four harnesses commonly used on cam harness motions.

Heavy or double pull-down harness springs on heavy twills help to prevent harness skips on dobby-equipped looms.

Three or four banks of drop wires are usually sufficient to weave most twills. Warp ends are reeded the usual number of ends to the dent, depending on the weight of the cloth.

To obtain a good face or twill line, the take-up roll (or top guide roll) and the stop-motion girders should be set high enough to form a tight bottom shed and a fairly slack top shed (when twills are woven face up). These settings should not be carried to extremes, though; if they are, broken warp ends and overshots will result.

The warp shed should be large enough to clear the top of the shuttle by at least ⅛ in. when the bottom shed is just clearing the race plate.

The harnesses should be timed to cross when the reed is about 2½ ins. from the fell of the cloth.

Adjust Tape Selvages To the Main Warp Shed

Most drills and twills are woven with tape selvages, and particular care must be given to setting and timing the tape-selvage motion. The selvage shed should conform as nearly as possible to the warp shed in size, settings, and timing.

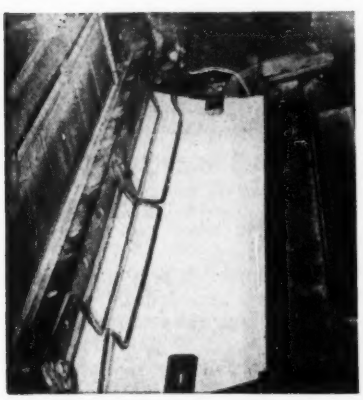
If the tape-selvage harnesses are set too high or timed earlier than the regular warp harnesses, small overshots in the warp will result. These same setting errors will cause the filling yarn to bunch and make jerkbacks.

Reduce the Beat-back For Better Weaving

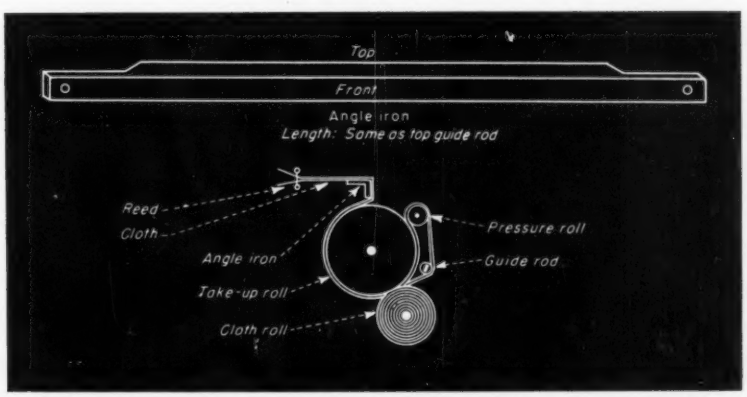
Drag rolls are required on some of the heavier twills; light twills can be woven without drag rolls.

To reduce the beat-back on XD

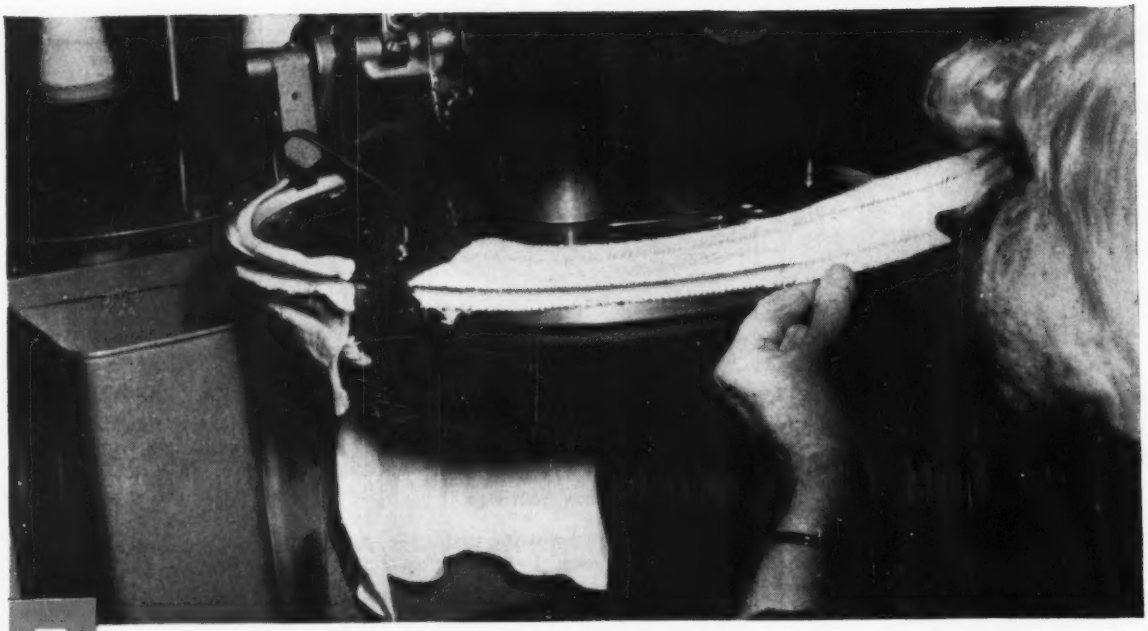
(*Continued on page 178*)



BEAT-BACK ON TWILLS is reduced on XD Draper looms by threading the cloth inside the breastbeam and around the rolls.



THE BREASTBEAM on XD looms can be altered by removing the top guide roll and adding a piece of angle iron. The angle-iron stock is ¼ in. thick and 3½ ins. on each side. The length is the same as the top guide rod.



1 THE COURSE AFTER THE PULL THREAD on the left half of the neckband is run onto the points with the ravel edge to the bottom.

How To Loop SWEATER NECKBANDS For Neatness and Sales Appeal

▶ A standard-dial single-thread looper can be used to loop sweater neckbands for better looks and sales appeal. The method outlined here tells how to knit the neckbands and loop them to the sweater bodies.

By **JAMES H. BLORE,** Assistant Editor, TEXTILE WORLD

A NEAT-APPEARING NECKBAND is one of the chief contributions that the knitwear manufacturer can make toward a garment with sales appeal. Because the stitches are fastened loop for loop and a single-thread chain stitch is used, looping gives a join that looks far superior to joins made by other methods of seaming.

It has been customary to use a small-dial looper to join neckbands, but here is a method of looping that can be done on standard-dial single-thread loopers.

Although this method is particularly favorable for dolman sweaters, V-necks and round necks on any circular-knit sweater can be looped with good results. Much time is saved because some of the operations involved require only jabbing the stitches on the points, instead of looping.

The lxl rib neckbands are made on flat machines. The machine is set up to make the neckbands in this manner:

1. ½ in. carded cotton
2. One course pull thread
3. Neckband in same yarn as sweater
4. One course pull thread
5. ½ in. carded cotton

The neckband is knitted to any desired length, but 1 in. to 1½ ins. are the most popular sizes. Neckbands made from undyed yarns are cut so that they can stretch out to 21½ ins. Dyed neckbands are stretched to 22½ ins.

How Neckbands Are Attached

After the neckbands have been separated by cuts made midway through the cotton courses, the looping job can be started as follows:

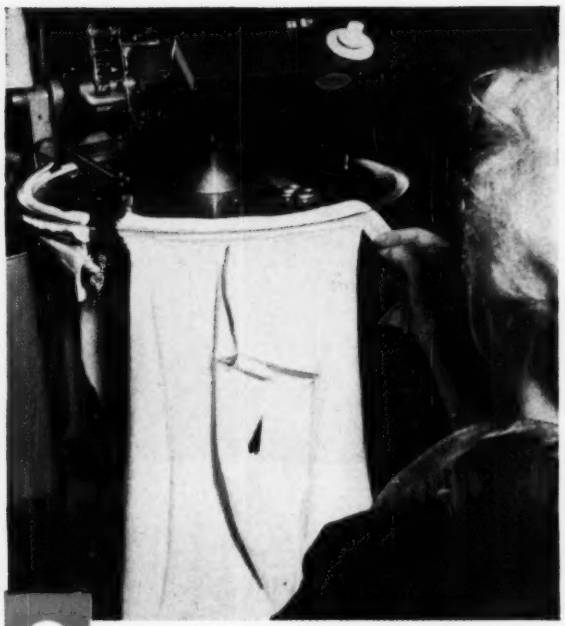
1. The left half of the neckband is run onto the points with the ravel edge below the points. The points are entered stitch for stitch through the course above the pull thread.

2. The body is bodged onto the points occupied by the neckband with the center of the sweater back on the operator's left and the inside of the sweater facing the operator. No attempt need be made to loop stitch for stitch because several courses will be left on the points and these loose courses are hidden on the inside of the neckband when the garment is finished.

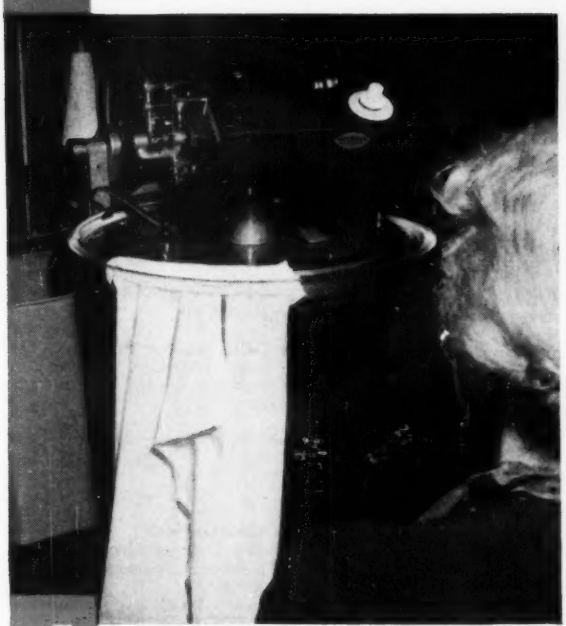
3. The upper-left part of the neckband is then turned down onto the points and bodged on above the pull thread.

4. The machine is run until the dial has turned 90°; then another neckband is run onto the points. Enough space must be left between the two neckbands to receive the right

2 **THE SWEATER BODY** is then jabbed onto the points with the center back on the left. The looping need not be done stitch for stitch.



3 **THE NECKBAND** is turned down, and the course above the pull thread is run onto the points. The machine is turned, and another neckband is run on.



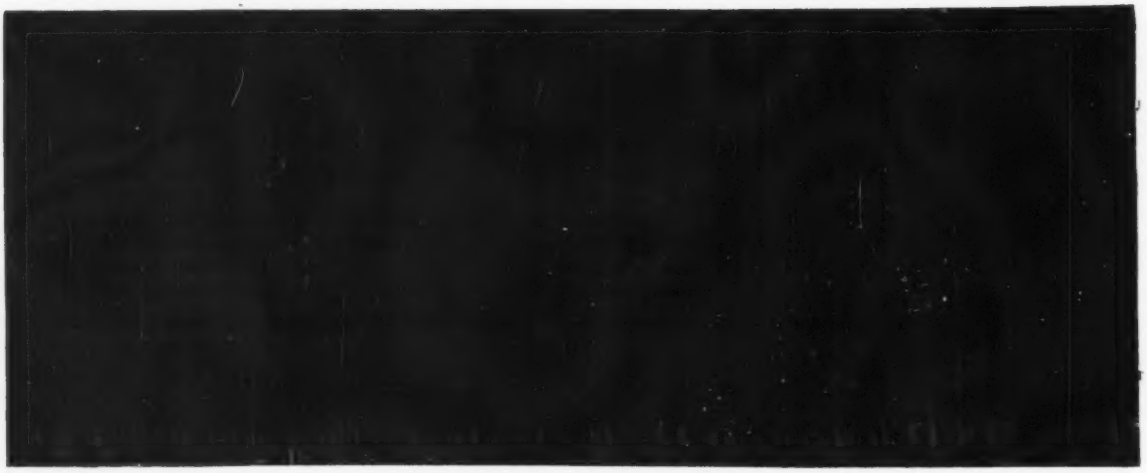
4 **THE LOOPED PORTION** is pulled off after the dial has turned one revolution. The remainder of the neckband is then placed on the points.

5 **THE DRAW THREADS** are pulled out to allow the cotton fabric to fall off. The opening can be closed by hand sewing.

half of the neckband that is to be looped on the next revolution of the dial.

5. When the looped half of the neckband comes around to the operator, the looped portion is pulled from the points and the chain is trimmed. The right-hand portion of the band is run onto the points, stitch for stitch, and the body of the fabric is bodged on the points. Care is taken to see that both ends meet at the closing of the neckband. The remaining part of the neckband is then turned down, and the first course above the pull thread is run onto the points.

6. The machine is run again, and the looped sweater is taken from the points. The draw threads are pulled out to separate the cotton, and the opening is closed by hand sewing.



New Formula for COTTON-YARN STRENGTH Uses Six Properties

► **Fiber strength, number of fibers, twist, staple length, fineness, and specific gravity are used in this tentative formula to predict skein strength with remarkable accuracy.**

By **JOHN DUERST,** Coats & Clark, Inc.

A FORMULA has been developed that predicts cotton-yarn strength from fiber properties.

This formula is subject to revisions in the light of further research, but results obtained from the formula in its present form indicate that the time is ripe for its presentation.

Next to the Micronaire reading, the Pressley index of the individual fiber strength is undoubtedly the most important predictor of yarn strength. The Arealometer reading is a necessary ingredient, and the specific gravity is important, though seldom encountered.

These factors, expressed in their relationship to the effects of the twist, give an indication of the strength. In addition, comparison of the known values of this formula to the observed strength has contributed a constant that represents the unknown factors and the factors that are not included in the formula.

Based on a paper presented to the American Society for Quality Control recently at Chattanooga, Tenn.

Here Is the Tentative Formula for Yarn Strength

The formula for predicting the yarn strength of 120-yd. skeins is:

$$\text{Strength} = KPS_1ZYW$$

With the exception of P (Pressley strength), these letters represent formulations with considerable background, and only a brief description of each factor will be given here:

(1) K = constant. It is advisable to figure out this constant for each specific situation. However, tests made on a wide range of yarn numbers made from ⅞- to 1½-in. staple of American and Egyptian varieties have shown a consistent factor of close to 0.0574. This constant was found by dividing the product of PS_1ZYW into the observed strength of the yarn. The constant includes the unknown factors and minor factors that are not included in the formula—differences between testing machines, skill of operators, moisture, temperature, drafts, contractions, doublings, and conversion coefficients.

(2) P = Pressley index

(3) S_1 = Number of "working" (frictionally active) fibers in the cross section—the total cross-sectional fibers minus the equivalent of inactive peripheral fibers

$$S_1 = (\tfrac{3}{4}u^2 - u)$$

where u is expressed as a function of the yarn number and fiber fineness:

$$u = \sqrt{1 + \frac{8{,}000}{\text{Yarn No.} \cdot \sqrt{F}}} - 1$$

where: F is the Micronaire reading on the Upland scale.

(4) Z = Twist impulse indicator. At maximum twist, $Z = 1.00$. For undertwisted or overtwisted yarn, Z is always less than 1.00.

$$Z = \left[1 - \left(\frac{(L_1ut - 280)}{280}\right)^2\right]$$

where:

t = turns per inch
L_1 = effective staple length,
u = number of fibers in yarn cross-section.

(5) Y = Index of twist impulse inserted

$$Y = \sqrt{L_1ut}$$

(6) $$W = \frac{1}{(\text{cm}^2/\text{mg})\sqrt{F}\sqrt{s}}$$

where:

cm^2/mg = Arealometer reading
F = Micronaire reading
s = Specific gravity (approx. 1.5)

Maximum Strength Depends on Maximum Twist

When a yarn is spun, the twisting action interlaces the fibers into spiral and helical positions within the yarn

Observed and Predicted Yarn Strength For 120-Yd. Skeins of Cotton Yarn

Yarn Nos.	Strength			Properties		
Nominal	Actual	Predicted	Observed	Turns per inch	Grader's staple (ins.)	Effective staple (ins.)
Combed						
15*	15.0	165	162	14.4	1 1/8	1.18
19*	18.6	128	128	16.1	1 1/8	1.18
22*	21.1	110	112	16.9	1 1/8	1.18
22*	21.5	97.5	100	14.0	1 3/16	1.25
28*	26.7	78.5	78	19.4	1	1.05
30*	29.1	76.5	79	18.2	1 1/4	1.31
36*	34.8	62.5	63	21.4	1 3/16	1.25
44*	43.8	46	44.5	24.1	1 1/8	1.18
54*	53.5	38	38	26.5	1 1/4	1.31
64*	61.2	32	32	28.3	1 1/4	1.31
36†	35.9	76	76	20.4	1 5/16	1.38
44†	43.2	63	62	22.6	1 5/16	1.38
54†	54.0	46	46	25.9	1 5/16	1.38
60†	60.1	44	42	26.6	1 5/16	1.38
66†	66.2	37	37	27.8	1 13/32	1.48
Carded						
52‡	51.6	39.7	40.6	25.2	1 3/32	1.09

Fiber Properties

	15s – 64s*	52s‡	36s – 66s†
Pressley index	8.1	9.4	9.08
Specific surface area	2.98	2.6	3.2
Specific gravity	1.5	1.5	1.5
Micrograms per inch	4.0	4.4	3.5

*Older rain-grown types of Delta 1934-1940 crops
†Egyptian
‡Hopi Acala

cylinder and creates frictional contact points between the fiber surfaces. The frictional forces are active only when pull is applied to the strand; at this time, the fiber characteristics and physical properties of the yarn come to light.

When pull is applied to a yarn, the frictional-force potential is matched against the individual fiber strengths. If the frictional force that develops is equal to the sum of the frictionally active fiber breaks, maximum strength is realized. This condition of maximum strength demands maximum twist evenly distributed over the yarn.

Maximum twist is closely related to the available fiber surface areas, and it is higher for fibers with thicker dimensions.

The formula for finding the maximum twist takes into account this relationship:

$$\text{Maximum turns per inch} = \frac{280}{L_1 u}$$

Strength Comes From Inside the Yarn Cylinder

But maximum twist does not give absolute strength because of peripheral fibers are partly frictionally inactive and protruding ends are completely inactive. Tests and calculations have shown that five-sixths of the entire peripheral fiber-friction potential is lost. This loss is especially important for finer yarns, because a large percentage of their cross-sectional fibers are surface fibers.

Yarn, like a chain, is no stronger than its weakest link. A weak spot is a thinned-out place in the yarn with fewer fibers per cross section. However, the weak spot strengthens itself by stealing twist from adjacent sections, and these under-twisted sections slip apart when pull is applied to the yarn. Thus, the so-called weak spot is actually stronger than the adjacent sections that break.

Maximum strength predictions are based on normal fiber characteristics. These predictions are not realized if the ratio of immaturity is high, if cavitoma is present, or if the staple length is judged too low or high. If a radically different fiber is substituted for a normally used variety, the substitution may prove costly for production and predicted results.

The valuable suggestion to make individual fiber strength and fineness important ingredients of a universal strength formula was obtained from Louis A. Fiori of Southern Regional Research Laboratories. This suggestion is gratefully acknowledged.

Progressive Bundling

(*Continued from page 92*)

The seaming-machine operators face away from the cutting tables, and the shirts are passed forward to proceed smoothly to the finishing section. The first seaming operation is the joining of the left shoulder. Subsequent operations are arranged so that easy handling is obtained and goods keep moving.

The first seamer lays out the 3-doz. bundle on the bench and seams the shoulders without disturbing the shirt bodies. This procedure allows the hemmers at the next operation to pick up the goods with a minimum of delay. Hemming is done on Singer 246-4 machines equipped with folders to control the hem length. The shirts are folded to allow the next operator to pick them up conveniently for collarette attaching.

After the sleeves have been set in, the seams are bar-tacked to make them secure. The overlock chains are clipped on a Trimaster machine.

All garments are then turned and inspected for holes, dirt, faulty seaming, and faulty bleaching. Seaming faults are sent to the mending section. One girl with a three-thread seamer and a single-needle lockstitch machine repairs all faulty seams.

The flow of regular work is improved by having mending done by a separate girl instead of sending it back to the original seamer. Several operators have been taught to operate all machine types. These utility operators take the place of absentees who would cause bottlenecks in the system.

An automatic press, built by the American Safety Table Co., presses the T-shirts after they have been folded. The heat for the press, supplied by an element in the press bed, can be controlled to any desired temperature. Pressure on the garments can be varied by adjusting four thumbscrews. The conveyor speed is variable to allow for size and style differences. A production of 1,800 doz. T-shirts per day has been obtained.

One girl lays folded shirts on a continuously moving belt that conveys the shirts to the heated bed plate. An inclined lower leading edge on the plate guides the garments under the pressing surface.

As the garments emerge from the press, they are labeled by a girl standing at one side of the conveyor belt. A girl at the end of the belt removes the garments and stacks them in dozens.

This continuous-flow system at Oneita enables orders to be rapidly executed, cuts down the amount of goods in process, and reduces the space required in process storage.

Why VARIABLE-SPEED SPINNING* Has Not Been Successful

A false assumption that yarn tension is the only limit to spinning speed has buried 40 years of hope for success of variable-speed spinning. Factors not given proper consideration as limiters are—

- Lint accumulations
- Traveler wear
- Drafting limitations
- Spindle vibration

Is variable-speed spinning hopeless? Not quite, says GE.

By **R. E. PARKER,** Textile Application Engineer, General Electric Co.

20,000,000 U. S. spinning spindles are waiting for a good variable-speed drive. In the past, several such drives have been promising but failed to prove themselves in operation.

To find out why variable-speed spinning has not netted the 15 to 20% production increase expected, which would have made it economical, TW went to General Electric Co.'s textile-engineering department.

GE opened its files on 40 years of expensive, and largely unsuccessful, experimentation on variable-speed spinning and analyzed the problems, causes of past failures, and challenges of the future.

CONCLUSION: Successful variable-speed spinning is not hopeless. But to come up with a winner, mills, drive manufacturers, and others working on the problem must approach their development work with more knowledge and more realism than past experimenters have used.

SEVERAL TIMES during the last 40 years, General Electric Co. has engaged in work on variable-speed spinning. The program has included theoretical studies, motor and control development, and tests in several mills. During this period, engineers have designed, built, and tested at least four different types of motors with one or more designs of a speed controller for each.

Records indicate that the past program consisted of four distinct phases characterized by the type of motor employed:

Phase I—Single-phase brush-shift motor, 1910-1925 approximately

Phase II—Type BTA three-phase brush-shift motor, around 1929

Phase III—Type M wound-rotor motor, 1937-1942

Phase IV—Type ACA three-phase brush-shift motor, 1945 to present

Only fragmentary records of Phases

*NOTE: Variable-speed spinning as discussed here refers to automatically changing the speed as the bobbin builds up and as the ring rail moves up and down.

It should not be confused with adjustable speed spinning, which provides for manual adjustment of the constant-speed level.—EDITOR.

Results of Variable-Speed Spinning Tests

	Mill A	Mill B Test I	Mill B Test II	Mill C	Mill E	Mill D Test I	Mill D Test II	Mill F Test I	Mill F Test II	Mill G
Type of frame	H&B	*S-L	S-L	S-L	S-L	S-L	S-L	Whitin	Whitin	S-L
Type of motor	M	M	M	M	ACA	ACA	ACA	ACA	ACA	ACA
Date of tests	1936	1937	1937	1942	1948	1949	1949	1949	1949	1950
Number frames equipped	52	6	10	1	4	1	24	1	1	1
Number tested	4	1	1	1	1	1	1	1	1	1
Ring diameter (ins.)	1 3/4	2 1/4	1 1/2	1 3/4	2 1/4	2 1/4	2	2	2	1 7/8
Yarn number	30	22	30	30	12	24(a)	27(a)	16(c)	24(d)	30.5
Type of wind	Comb.	Fill.	Fill.	Warp	Warp	Fill.	Fill.	Comb.	Comb.	Comb.
Normal speeds (rpm.)										
Front rolls	120	136	136	123	163	115(b)	114(b)	160	130	139
Cylinder	1,260	1,360	1,220	1,080	960	780	620	960	830	1,180
Spindles	10,250	9,550	9,950	9,800	6,620	7,000	5,500	8,200	7,100	9,830
Average variable speed (rpm.)										
Front roll	129	148.5	149.6	134.7	181	126.5	121	182.5	145.5	154
% increase	7.6	9.2	10.0	9.0	11.0	10.0	6.0	14.0	12.0	10.7(g)
Ends down per 1,000 spindle hours										
Constant speed	80	53	44	57.2	55	—	—	(e)	(f)	19.8
Variable speed	82	38	43	57.7	56	—	—	12.5	(f)	40.3
Break strength										
Constant speed	52.5	75.9	53.1	—	—	—	—	—	—	same
Variable speed	56.5	82.6	55.7	—	—	—	—	—	—	—
Yarn number										
Constant speed	30.5	22.57	30.19	—	—	—	—	—	—	—
Variable speed	29.3	22.08	29.47	—	—	—	—	—	—	—

* Saco-Lowell (a) Wool (cotton-type frame) (b) 1 3/8-in.-dia. front roll; others 1-in. dia. (c) 20% wool, 80% rayon blend (cotton-type frame) (d) 40% wool, 60% rayon blend (cotton-type frame) (e) Mill reported 25% less ends down with variable speed. (f) Ends down about same for constant and variable speed. (g) Not practical because of spinning-frame limitations.

YARN-TENSION CHANGES caused by the bobbin filling up and by the traversing of the ring rail can be offset by varying the speed of the spindle. However, yarn tension is not the only factor influencing spinning speed.

I and II are available, but complete reports of several mill tests during Phases III and IV are on hand.

Theory of Variable-Speed Spinning

Ordinary ring spinning is accomplished by rotating the bobbin at a much higher speed than is required to simply wind up the yarn. The difference goes into twisting the fibers together, which is permitted by the traveler, floating on the ring, being pulled around by the yarn. For any given traveler weight and bobbin speed, the actual tension in the yarn required to drag the traveler around the ring is largely a matter of geometry.

As illustrated in the accompanying sketch, the geometry changes in two ways during a doff: (1) as yarn builds from empty to full bobbin and (2) as the ring moves up and down to lay the yarn evenly on the bobbin.

Because the frictional drag of the traveler on the ring is proportional to centrifugal force, yarn tension is also a function of speed. Therefore, to prevent excessive yarn breaks, the normal constant speed is limited by the tension obtained at the most unfavorable portion of the cycle: namely, when the bobbin is empty and the ring is at the bottom on the bobbin.

However, if the speed could be varied during the cycle to take advantage of the higher speeds permissible during much of the cycle, it is theoretically possible to raise the average speed 15 to 25% and, at the same time, obtain better-quality yarn as a result of constant tension.

What GE Found Out

[Note: At the end of this article in slightly finer print is a condensed discussion of the four phases of experimenting GE has done on variable-speed spinning. Engineers and others who want all the details available should read the account of those experiments and take up again at this point.—Editor]

GE's 40 years of experimentation with variable-speed spinning in cotton mills has resulted in the firm establishment of certain facts. Yarn tension does vary, as theory indicates, as the rail moves up and down and the bobbin diameter increases. This fact can be roughly checked by feeling the tension with the finger during spinning. It has been closely checked and verified with several designs of tensiometers on many spinning frames in several mills over a period of several years.

Yarn tension also varies with spindle speed. This, too, has been verified by the same methods. By changing speed as the rail traverses and the

bobbin builds up, yarn tension can be maintained constant. Up to this point, theory and practice are in absolute agreement.

The next step in the development of the theory of variable-speed spinning is the assumption that: (1) the only factor limiting spinning speed is yarn tension and (2) that with constant-speed spinning the speed is much lower than necessary most of the time only because of the maximum tension encountered during the doff.

This assumption is not true. However, because tension is one of the limiting factors and the effects of the other factors were elusive and varied for the different trials, the falseness of this assumption was not recognized.

Many times during the years of experimentation, some shortcoming of the drive was suspected of preventing the expected 15 to 20% production gain. Consequently, four different kinds of motors and numerous control mechanisms were tried. In most cases, the production gain was 10% or less, which would not justify the expense of installing the drives.

Often, efforts were directed toward refinements or redesign of the control or changes in the drive motor to improve the rapidity of response to the speed schedule, reduce backlash, facilitate adjustments, provide easy installation, reduce space requirements, provide suitable enclosure for lint atmosphere, and reduce the price.

Granted that all of these features generally needed improvement to provide a completely satisfactory drive, most of them did not affect the production gain obtained. Even those factors that did affect the gain could have been perfect without improving the result more than 1 or 2%.

Here Are the Drawbacks

As far back as 1929, it was noted that bobbins rose on the spindles and spindle oil vaporized at high speeds. At least 10 years ago, traveler and spindle limitations were recognized. It was always assumed by the engineers that these problems would be solved by someone if a completely satisfactory variable-speed drive were developed.

However, these solutions would require further expense, which would have to be justified by still greater production gains. End breakage increased at high speeds even though the normal maximum tension was never exceeded. Lint, drafting limitations, traveler wear, and spindle vibration, all of which were aggravated by increased speed, probably contributed to the greater end breakage. Over the years, one or more of these factors prevented the theoretical gains of variable-speed spinning from being attained in practically every instance.

Why is variable-speed spinning successful in foreign countries?

In the first place, recent reports indicate the gains were not nearly as great as first supposed. Instead, the usual increases now claimed are of the order of 6 to 10%.

Second, one of the attractions of the variable-speed spinning drive was ease of adjustment of the general speed level according to the particular conditions encountered for different yarns and variations in the cotton characteristics. In contrast, many U. S. mills run year in and year out at the same speed because of the large quantities of the same yarn produced and because the cotton quality is generally controlled by blending and a consistent source of supply.

Most progressive U. S. mills, which are the ones that would be interested in variable speed if it were successful, are already operating at very high spindle speeds. Most of the existing cotton spinning frames are not capable of running at higher speeds to benefit from variable speed because of mechanical limitations, and some new spinning frames now being produced have features that inherently reduce the tension variation at constant speed.

There is no doubt that suitable variable-speed drives can be manufactured for spinning frames if there is a demand for such drives. However, in view of the practical limitations on the increased production obtainable, mills cannot justify the expense; so the prospects of applying variable-speed drives to spinning frames in the United States in the immediate future are unfavorable. Therefore, economical packaged drives designed particularly for variable-speed spinning are not expected to be readily available.

Mills desiring to experiment will usually have to purchase some standard adjustable-speed drive and modify it by providing the necessary speed programming control. Descriptive information on several control designs that have been used is available from various sources.

Before Experimenting, Apply These Checks

Since experimentation with variable-speed spinning is expensive and time-consuming, mills should first determine the chances of success by some simple checks. In order to obtain a higher average speed without increased end breaks by using variable-speed spinning, the existing constant-speed pattern of end breaks must show that a high percentage of the breaks occur at a particular portion of the doff or at a definite rail position in the cycle.

Step 1—Determine End-Break Pattern

So the first step is to count the end breaks for several doffs, being careful to classify them according to rail position and portion of doff. If analysis of the end-break pattern shows even distribution, further consideration of variable-speed spinning is useless.

Step 2—See if Frame Can Stand Higher Speed

If the end-break pattern shows that most of the breaks occur at a particular place, such as when the bobbin is empty or when the rail is at its top position, the next thing to check is the ability of the spinning frame to operate at higher speeds without encountering troubles such as traveler wear, spindle vibration, bobbins rising on spindles, spindle-oil vaporization, or excessive end breaks at the places where the breaks are low at the existing speed.

This check can be made by simply raising the constant speed temporarily during the most favorable portion of the doff. At this stage, it would be advisable to consider the possibility of raising the existing constant speed slightly, either in the spinning frame's existing condition or after the modification of some limiting feature, instead of providing for varying the speed.

Step 3—Check the Cost

If the end-break pattern is favorable and the frame is capable of operating at higher speeds, this application may be a place for variable-speed spinning. However, before installing any variable-speed drives, the mill should have its cost accountant determine if the cost of the drives can be justified on an assumed probable increased production of 10 to 15% with the same end breakage.

Experience Is Against You

Based on past experience, at present few spinning frames in the United States are expected to pass the three tests described: namely, favorable end-break pattern, spinning frame capable of higher speeds, and economic justification of the drives.

It is not the intention of this report to discourage all future consideration of variable-speed spinning. Conditions do change. Also, past experience may not even be representative of the wide range of conditions now existing. For instance, only a few tests have been made in the woolen industry, and none involved the new synthetic fibers.

However, it is hoped that this report will mark the end of the era of

optimism based on theory and the beginning of an era of reality based on the experience of the past plus the facts established in the future.

GE's 40 Years of Experimenting

Phase I—Single-Phase Brush-Shift Motor

Variable-speed spinning was introduced in Europe around 1900, and its success there led to work on variable-speed spinning by General Electric shortly afterwards. Fragmentary records indicate that a variable-speed drive for spinning frames had been developed by 1911. This drive consisted of a single-phase brush-shift a.c. motor with a mechanical program control to shift the brushes for changing the speed.

No records of tests with these drives have survived. However, photographs show trial installations in several mills and 44 drives installed in a New England mill before 1916. The first official GE publication on variable-speed spinning, which describes this drive, is dated April, 1916.

Phase II—Type BTA Motor

In 1929, another company conducted variable-speed spinning tests with a BTA motor at a South Carolina mill. The normal spindle speed was 10,800 rpm.; and at speeds above 11,650 rpm., it was difficult to keep oil in the spindle bolsters and the bobbins had a tendency to rise on the spindles. Variable-speed tests below this limiting speed gave only 4.4% increase in production and slightly more ends down. A conclusion was reached that the expense of applying BTA motors at this mill could not be justified.

Apparently, other mills tried BTA motors, but no records were retained.

Phase III—Wound-Rotor Motor

In an effort to offer a less-expensive drive for variable-speed spinning, GE engineers in 1934 turned to the wound-rotor motor with secondary resistance for speed control. One such drive was tested in a New England mill in 1934. The tests indicated that production could be increased about 7% and end breaks reduced slightly.

Presumably on the basis of some preliminary tests and an expected 10% increase in production, another mill (say Mill A) bought 52 drives in 1936. However, between the time of the first test and the final tests of the 52 drives, the mill was able to raise the front-roll speed from 116 to 120 rpm., or about 3½%, with its constant-speed drives. Consequently, the variable-speed drive produced only a 7.6% gain instead of the 11.2% it would have produced over the previous lower constant speed.

Extensive tests to evaluate the effects of variable speed were made in December 1936. At the 7.6% increase in production, end breaks were about the same. The yarn was 7.45% stronger for variable speed, but for some unknown reason its weight was 4.14% greater, which probably accounts to some extent for the greater strength.

In 1937, Mill B installed six drives on spinning frames making warp yarn and 10 drives on frames making filling yarn. Extensive tests were made on both types of frames for comparison with constant-speed spinning.

On the warp frame, a 9.2% increase in production and 29% fewer ends down were obtained. The yarn breaking strength increased 9%, but the weight was 2½% greater, which probably accounts for some of the increased strength. Because of a more tightly wound bobbin, 7.5% more yarn was wound on the bobbins.

A 10% gain in production was obtained on the filling frames, with about the same end breakage. Breaking strength increased 5%, but again weight increased 2½%. About 10% more yarn was wound on the bobbins.

In 1942, one drive was tested at Mill C. The result was a 9% increase in production with no change in ends down.

Phase IV—Type ACA Motor

The failure to achieve results in practice that approached the theoretical possibilities led to the suspicion that the sluggishness of the wound-rotor motor in changing speed was partly to blame. Before abandoning the Type M motor, an elaborate test setup was made to determine the required speed schedule to maintain constant tension. Actual yarn tension was used as the signal to control the speed of a d.c. drive motor through an amplidyne.

These tests verified the theory of the relationship between yarn tension and speed and also indicated the desirability of more rapid response when a speed change is required than was obtained with the Type M motor. Therefore, experiments in applying the ACA motor were started immediately after World War II at Mills D and E.

Some tests had been previously made at Mill D with the M motor, and the existing spindle bolsters on the old frames were found to be unsatisfactory for higher speeds. Therefore, prior to the test with the ACA motor the mill had converted to ball-bearing spindles.

This trial installation on a cotton spinning frame gave a 10% gain in production. Next, a drive was installed on a frame spinning wool on the American System (with cotton-type frames). Again a 10% gain in production was obtained. This mill, which sells yarn, learned from its customers that the variable-speed yarn was of better quality; and it installed 24 ACA motor drives. However, as a result of smaller rings on the new frames and a lower twist in the yarn, only 6% gain in production was obtained.

Tensiometer Used

About this time, a tensiometer employing magnetic strain gauges and a photoelectric recorder was developed to continuously record the total tension for 10 ends. This tensiometer was used in the later tests at Mill D and in all subsequent tests in the series.

Following tests on a special short traversing-spindle frame, Mill E installed four ACA motor drives. Extensive tests showed that a 10% production increase was practical; but on the basis of even yarn tension, considerable more gain was theoretically possible. The theoretical goal was not obtained because of excessive lint, front-roll vibration, and end breakage caused by unknown speed effects at the speeds required to maintain constant tension. All four frames never were put into production on variable speed, and the program was abandoned in 1949.

In 1949, Mill F installed one ACA motor drive. Results here were encouraging. On one type of yarn, a 14% increase in production and 25% fewer end breaks were obtained; and on another yarn, the gain was 12%, with the end breaks the same as for constant speed.

However, the economic study indicated that about five years would be required to pay off the investment, which was considered to be a marginal investment at that time. Also, as the result of these studies, this mill was able to reduce end breaks at constant speed by modifications to the spinning frame.

Early in 1950, variable-speed spinning tests were made at Mill G. Although this mill was already operating the spindles at 9,830 rpm., the spinning frames were new; and from the standpoint of tension as measured with the tensiometer, a production gain of 10 to 12% seemed possible.

However, operating difficulties at the required speeds prevented any worthwhile gain. To obtain the 10% increase, the spindles had to run at 11,800 rpm. sometimes. At these high speeds, travelers broke, excessive lint was created, bobbins rose on the spindles, spindles wobbled, spindle oil vaporized, and end breakage was excessive.

The accompanying table summarizes the results of the more complete tests just described. In addition to the data shown in the table, some mills conducted extensive tests to determine if any improvement in yarn strength and uniformity were obtained. The general conclusion was that no significant improvement in quality could be attributed to variable-speed spinning.

Other Experimenters

GE has not been the only U.S. company to design and experiment with variable-speed drives for spinning. One motor manufacturer has experimented with wound-rotor motors, particularly in woolen and worsted mills. Many wound-rotor motors have been applied to woolen and worsted frames to provide adjustable speed and smooth start but practically none to provide variable speed during spinning. Where variable speed was tried, it was only a rough approximation of the theoretical program accomplished with limit switches on the spinning frame.

Mechanical adjustable-speed drives have been tried for variable-speed spinning too. Records show that nine of these drives were installed in a mill in 1936. A bulletin published in 1934 shows photographs of some mill installations, one of which included 24 mechanical variable-speed drives.

In 1948, another company experimented with an electronically controlled drive for variable-speed spinning.

Nine Tips To Top Quality Aid

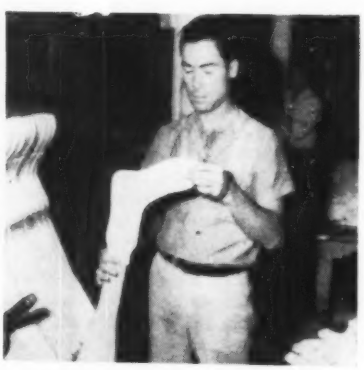
Keep merge numbers separate

Though final pairing is done before packaging, much work can be avoided by keeping merge numbers separate. If merge numbers are mixed in dye lots, control of shades is difficult to maintain.

Keep fine adjustments of sizes

Frequent sizing at the machine does much to aid the preboarder. Preboarding can handle minor variations in size, but control can make preboarding much more efficient.

Keep wales straight in preboarding



Crooked wales means rejects. This Paramount preboarding machine does a good job at 220°F. in 1½ mins. Goods dye better if taken moist from the preboarding forms. Preboard at 260°F. with 20 psi. Dry the socks later, if they are to be kept for some time before dyeing, to prevent mildew.

Prescour thoroughly

A thorough prescour will do much to clean and prepare the dye batch for dyeing. A selected wetting agent should be used in the proper concentration to do a thorough and efficient job. If goods are sufficiently clean, the prescour can also serve as a dyebath.

Use pure water

Climax has a good filtering system. The pH of process water is adjusted to 6.8. A sequestering agent is used in all dyebaths.

HOSIERY DYEING

Keep machines clean

To avoid redyes and rejects caused by oil and dirt, keep the machines clean. Scouring can remove some oil and dirt, but in general only dark shades can be dyed on oil-spotted goods.

Weigh dyes accurately

Nelson Seagraves, chemist, believes accuracy is the first prerequisite to uniform and reproducible dyeings.

After a formula has been established, check it every time a new merge number or style is put in the line. The dyeing procedure should be maintained from batch to batch for consistent results.

Run each lot the same

This shop-made clock is set by the operator to remind him when to perform the next operation in the dyeing cycle. Several precautions observed at Climax are:

(1) Dissolve the dyestuffs thoroughly and add to dyebath slowly while the paddle is in motion.

(2) In light to medium shades, scour 20 to 30 mins. and overflow the kettle before draining.

(3) Raise the dyebath temperature slowly. Go from 120° to 210°F. over a 30-min. period to avoid driving the dye on too quickly.

(4) Salt gradually, and only after dyeing has proceeded about 30 mins. Run dyeing 40 mins. more at 210°F.; then cool to 150° F. before dropping the bath.

(5) Rinse thoroughly to remove all excess color.

Use care on final board

This last step is the finishing touch. Straight wales and freedom from wrinkles do much to sell the product.

GEORGIA TOE REPORT—

Instrument Controls in SLASHING Boost Quality

Special handling of warps, coupled with instrument controls, has resulted in improvements in the quality of warps slashed by members of the Georgia TOE. The members are generally satisfied with the performance of—

- **Pneumatically loaded squeeze rolls**
- **Variable-speed drives**
- **Common size formulas for homogenizers**
- **Moisture-content control instruments**
- **Instrument control of size viscosity**

MEMBERS OF GEORGIA TOE got together at Georgia Tech recently for their annual fall meeting and talked about several slashing problems that were giving most of them trouble. A survey of the answers shows that most mills are depending on the newer types of instrument controls to aid them in slashing warps uniformly.

Special Squeeze Rolls Give Good Results

Four mills told of their satisfactory results from using pneumatically loaded squeeze rolls. Advantages listed are:

1. Ease of operation
2. The ability to vary the pressure for different yarn numbers
3. More-even pressure for the full length of squeeze rolls

Yarns including 4s, 6/3, and up to 16s are being run on this type of squeeze roll.

Pressures Above 1,500 Psi. Are Used on Homogenizers

Five mills gave their formulas for preparing size in homogenizers:

Mill A–"We place water in the cooking kettles, add 200 lbs. of pearl starch, 24 lbs. of compound, and 4 lbs. of wax; heat to 210° F. and hold at that temperature for 5 mins. We use instrument controls, and the size mix finishes at 236 gals.

"The size is homogenized at 2,000 psi."

Mill B–"We prepare pearl starch for cooking by the same methods we formerly used for thin-boiling starch.

"We mix 175 lbs. of pearl starch with 20 lbs. of compound, 10 lbs. of wax, and 129 gals. of water. Then we add enough water to bring the total capacity to 175 gals.

"We use 1,800-psi. pressure in the homogenizer."

Mill C–"We mix 280 lbs. of starch, 33 lbs. of compound, and 185 gals. of water, and heat to 210° F. This temperature is held for 20 mins., and the mixture is homogenized at 1,500 psi."

Mill D–"We cook our size for 1 hr. and then homogenize the cooked size at 2,000 psi. We use 120 lbs. of starch and 8 lbs. of compound for each batch of size."

Mill E–"We prepare homogenized starch this way: Mix size and fats with cold water in the mixing kettle and stir for 15 mins. Then run this mixture through the homogenizer at 190° F. Homogenized size is stored at 190° F."

Mill F–"In preparing size for homogenization, we put the correct amount of water in the kettle, add starch and compound, heat for 15 mins. to bring the temperature to 200° F., and hold this temperature for 10 mins. The mixture is then run through the homogenizer at 1,500 psi."

15 of 16 Mills Reporting Use Moisture Controls

Of the mills reporting on the use of instruments to control the moisture in yarns, 15 mills use the controls and only one mill does not.

Results of the instruments are reported by the mills to be from "not too reliable" to "excellent." But only one mill thinks the controls are not reliable; 14 mills think they are satisfactory or better.

No loom tests have been made to determine the running quality of warps slashed with moisture controls.

The number of slashers equipped with the controls in single-mill installations ranges from one to seven.

Maintenance of the controls in various mills follows no set pattern. One mill has had one slasher equipped with the controls for nine months and two more two months with no maintenance at all.

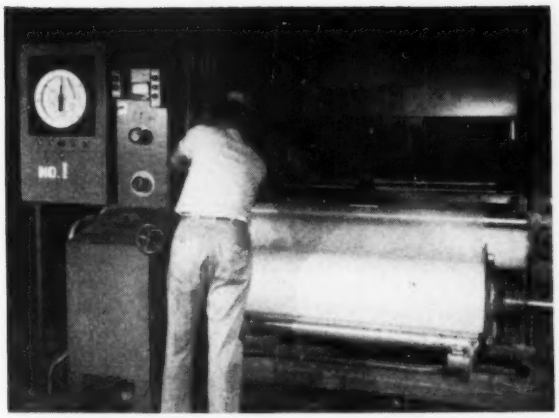
Two other mills have the manufacturer's service man check the instruments every three months. Occasionally, minor services have to be corrected by the mills' maintenance-shop personnel, but breakdowns are not common. This inspection schedule keeps the instruments in good condition.

At another mill, plant electricians repair minor failures. On major breakdowns, factory service men are called.

One other mill has a regular service contract with the manufacturer, and one of the mill's own men was sent to a school for special training. This mill now has little trouble with the instruments.

Several Methods Are Used To Control Size Viscosity

Twelve mills reported that they are concerned with having the percentage of size in yarns constant, and all of them are making concentrated efforts along this line.



SLASHER CONTROLS do a lot of work formerly done by the slasher tender and leave him free to give close attention to yarns as they are slashed. Better warps result.

SELVAGE PLY ENDS are separated at the comb to prevent rolled and uneven selvages on the loom beam. In this case, a tooth is skipped between ends.

Only one mill reported the use of instruments to control the viscosity of size. In this case, the instrument is used on a hot-air slasher, and results are reported to be fairly accurate.

Other slashers at the same mill are equipped with five cylinders. In studying laboratory tests of the size content of slashed yarns, this mill thinks that a large number of cylinders results in keeping size in warps more uniform.

Close checks are made on size cooking at this same mill to be sure that formulas are always the same. Homogenizers are inspected often for mechanical condition. For example, the valves are ground periodically.

Every mill reporting on the control of size viscosity has laboratory checks made often on all styles of materials made. Most mills make the tests in their own laboratories. The other mills use the services of outside testing laboratories.

In every mill, the sizing formula is watched closely to keep it uniform in every batch of mixed size.

Mills using other methods to help control size viscosity say:

Mill A—"We pay close attention to the condition of our blankets."

Mill B—"We keep squeeze rolls in good condition and keep the same tension on the squeeze rolls at all times to control size pick-up."

Mill C—"We use our size as soon as possible after it is cooked."

Mill D—"We keep each batch of cooked size at the same temperature."

Mill E—"We make laboratory tests on each slasher twice each week. At the time the test is made, we check the moisture content, warp stretch, and size-box temperature. New styles of warps are checked immediately.

"When the viscosity of slashed warps is too high or too low, we check the slasher, blankets, homogenizers, etc. to correct the trouble."

Mill F—"We find that if we circulate the size continuously and maintain a constant size level in the size box, our size viscosity is held fairly constant."

Ply Yarns in Selvages Separated From Single Yarns

Ten mills run ply yarns in selvages from section beams, and six mills run the yarns from special creels. Answers to questions on ply yarns are:

Mill A—"We attach a creel to the front of the slasher and run our selvage ends from the creel. This way, we do not have to run the slasher at a slower speed to dry the ply yarns."

Mill B—"We run selvage ply yarns from a creel and through an extra piece of comb attached to the regular comb to separate each individual end. This practice prevents rolled selvages

(*Continued on page 180*)

Most Mills Use the Newer Drives

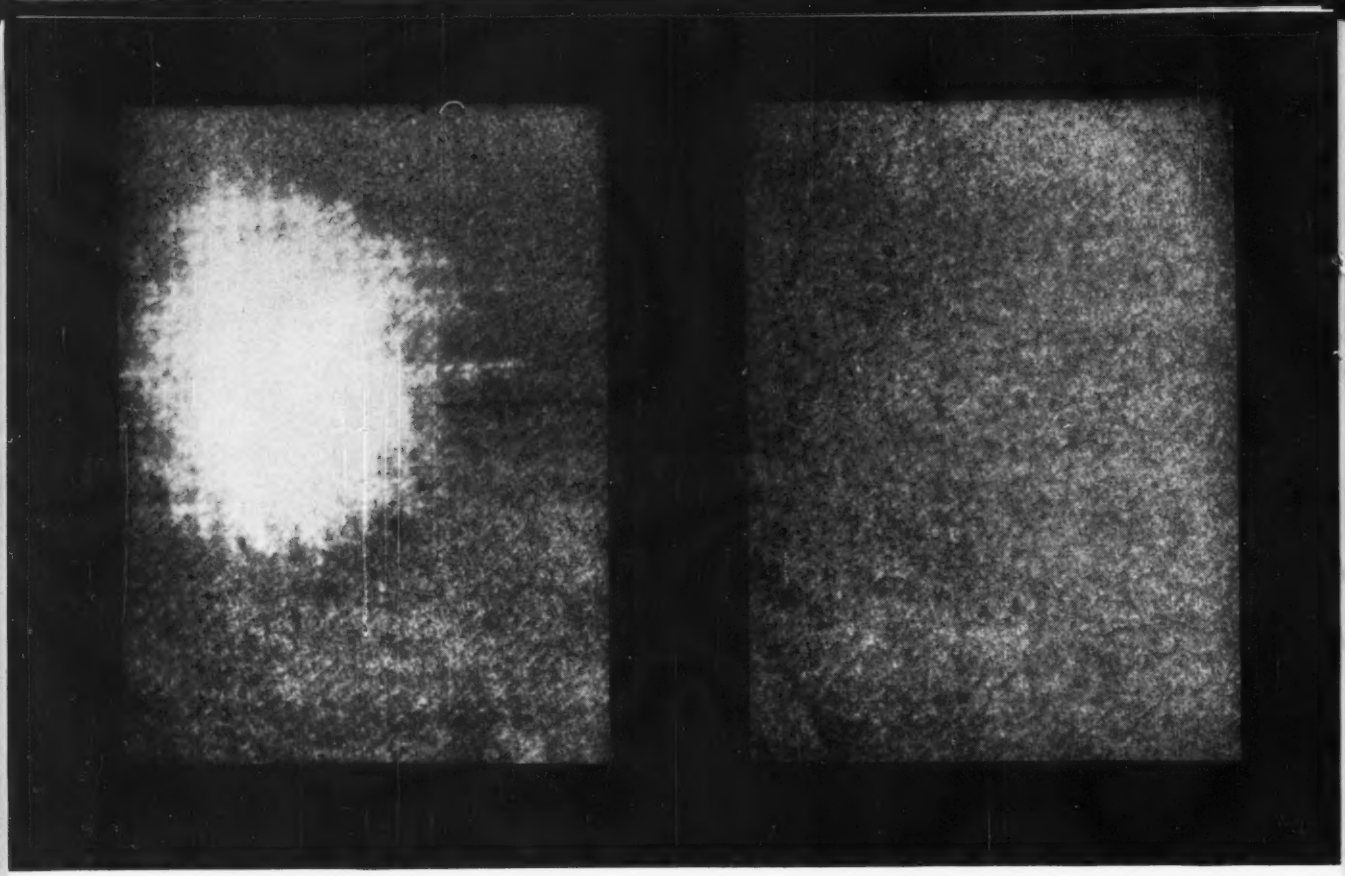
The percentage of over-all warp stretch is considered an important part of quality control in slashing by Georgia mill men. Reports on this subject came from 14 mills running slashers of from two to four cylinders and from one mill using a hot-air slasher.

Results at the mill are:

Yarn No.	No. of ends	Over-all stretch (%)	Type of drive
3.75s	1,950	1.75 to 2	Friction
8s	2,668	1.5	Variable speed
8s to 20s	600 to 2,000	3.09	Change gear
10s	1,500	1.5 to 2	Friction
12.25s to 17s	2,000 to 6,000	1 to 1.5	Friction
14s to 30s	2,000 to 3,000	1.4	Friction
14.5s	4,680	1.5	Friction
16s	1,960 to 5,800	1.5	Variable speed
16s	2,430	1.5	Variable speed
16s	528 to 1,368	1	Positive
25s, 31s, 40s	486 to 3,226	1.75	Variable speed

Ten mills use "slack" rods in the creel to prevent the section beam yarns from running slack and kinking when slashers stop. Five mills do not use slack rods.

Methods used to control yarn stretch other than positively controlled drives are: careful alignment of section beams in the creel, proper covering of take-up tension rolls, ball-bearing-equipped creels, and proper greasing of section-beam bearings.



ORDINARY MACHINE OIL. Ultraviolet light proves that ordinary machine oil is hard to scour. Oil that remains in the textile prevents level dyeing.

SUNOTEX MACHINE OIL. Ultraviolet light proves scourability of Sunotex. This oil scours easily and completely, leaves no stain, permits level dyeing.

ULTRAVIOLET LIGHT PROVES SCOURABILITY OF SUNOTEX MACHINE OIL

These swatches were oil spotted: one with ordinary machine oil, the other with Sunotex. After scouring, they both *looked* clean. To make sure, both swatches were photographed under ultraviolet light. The swatch spotted with ordinary machine oil fluoresced brightly, showing that even though it looked clean, it was still badly spotted. The swatch spotted with Sunotex didn't fluoresce, proving it to be oil-free after scouring.

Here's proof of how Sunotex helps prevent spoiled goods and unlevel dyeing. It scours easily, leaves no stain, does not damage fabrics.

For more information, call your nearest Sun office or write SUN OIL COMPANY, Phila. 3, Pa., Dept. TW-1.

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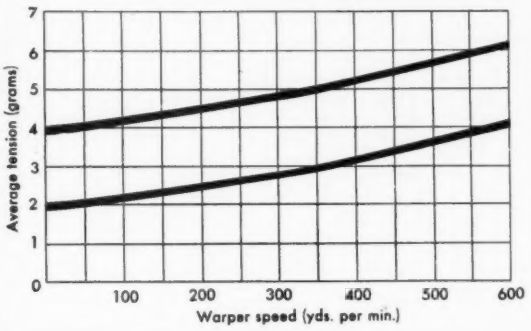
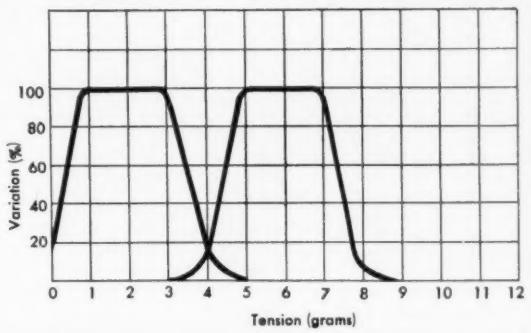


HIGH WARP SPEEDS raise yarn tensions. Tension on yarns running at 200 yds. per min. will increase 40% if the speed is increased to 500 yds. per min.



CONSTANT YARN TENSION is believed more important than low tension. One mill used this graph to show that tension variation at 2 gms. is about 20% less than at 6 gms.

New WARPING *Techniques Raise Tricot Efficiency and Quality*

Southern tricot mills are using these warping techniques to obtain knitting efficiencies in excess of 95%—

- **Low yarn tensions**
- **Low warper speeds**
- **Balanced beams**
- **Oiled yarn**
- **Regular creel maintenance**

By JAMES H. BLORE
Assistant Editor, TEXTILE WORLD

COMPETITION IN THE TRICOT INDUSTRY has caused mills throughout the country to lower costs and improve quality to maintain their share of business. This survey of Southern tricot mills shows how better warping techniques have improved knitting-machine efficiency and fabric quality.

Good Warping Starts With Good Yarn

Mills have found considerable variability in the quality of yarn from various throwsters. Records are kept by some mills on the number of warper stoppage and causes of warper stoppages to evaluate throwsters' ability.

To reduce waste, slubs, and split filaments and to insure good packages, some tricot mills are starting their own throwing departments.

Warping zero-twist, 55-den. acetate yarn directly from the cake is finding favor among some tricot knitters. Special adaptors for the creel and caps for the top of the cake are required, but this expense is rapidly reclaimed in the improved warps. Fewer knots and fewer broken filaments result in fewer stoppages on the warper and the knitting machine.

Sized yarn causes knitters some trouble. Shed size accumulates on the warp-creel tensions, causes uneven tensions on the warp, and lodges on the knitting machine. Shed size becomes sticky on the tension rails and causes trouble when the machines start up on Monday morning. Size accumulates on the needles and causes faulty pressing and faulty fabric.

Oiled Yarn Is Finding Favor

Yarn oiled by the "T" process is finding favor among some knitters. Oiled yarn does not gum up the guides, does not stick to the tension rail, helps lubricate the needles, and is cheaper than sized yarn.

Oil is sometimes applied on the warper by running the warp sheet over a roller driven at a slow speed from the warper or from a separate motor. The bottom half of the roller is submerged in an oil trough that is kept full by a constant flow of oil from a glass jug at one end of the trough.

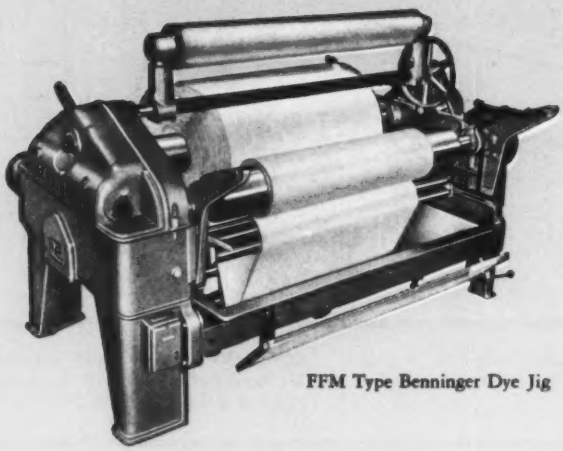
Some difficulty is experienced with high-twist oiled yarn when the warper stops. Twist runs back from the tension disk to the cone and causes a snarl in the yarn. The snarl then runs into the warp when the warper is restarted. Reducing tension on the yarn and decreasing the distance between the package and the tension disk will often cure this trouble.

Tensions Are Kept Low and Even

Yarn tensions should be kept low, but one mill puts greater importance on even tensions than low tensions. One mill goes along with the theory that you cannot go lower than zero tension; so if tensions are kept at 6 gms., more variability is seen than if the tension were 2 gms.

Tensions usually are 2 to 4 gms. on 15-den yarns and 3 to 5 gms. on 55-den. yarns. A new constant-tension device developed by General Electric has a magnetic brake that may solve some of the tricot knitters' problems. The yarn turns a pulley controlled by the brake to allow constant tensions at all beam speeds.

(*Continued on page 174*)



FFM Type Benninger Dye Jig

Dyes Rolls *up to* 39½" *diameter*

Ruggedly built for the toughest jobs, the FFM Type Benninger Dye Jig speeds the dyeing of heavy and tightly woven fabrics, in rolls up to 39½" diameter. Shorter dyeing time means greater production. Clear, bright colors are easily matched. End-to-end and selvage-to-selvage uniformity reduces waste, assures consistent high quality.

Useful width of the FFM Type Benninger Dye Jig is 98½". Cloth-running speeds are practically constant. Automatic reversing and stopping device, with self-acting passage counter, allows one man to operate several machines. Slight but constant tension can be increased if held within practical limits. Easily adjustable, assures complete uniformity. Oscillating balance expanding device gives creaseless runs on any cloth.

Squeezing device permits extraction of fabric before removal from jig. Optional stainless steel enclosure prevents selvage oxidation, cuts steam consumption, ends fogging of dyehouse.

Other types and sizes of Benninger Dye Jigs meet all standard requirements for cotton, silk or synthetic fibres, staple or mixed fabrics. Parts and service are readily available. Let a Butterworth engineer show you how you can lower your dyeing costs, improve your dyeing quality. Write for full details.

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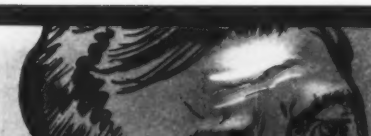
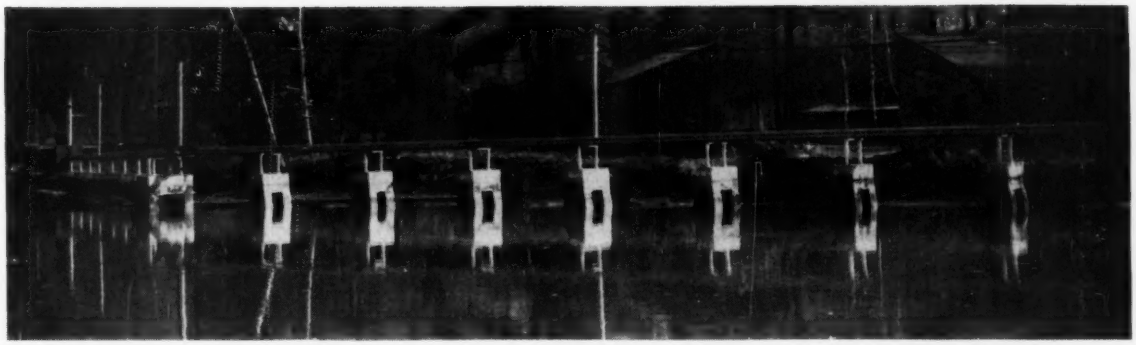


lighting problems



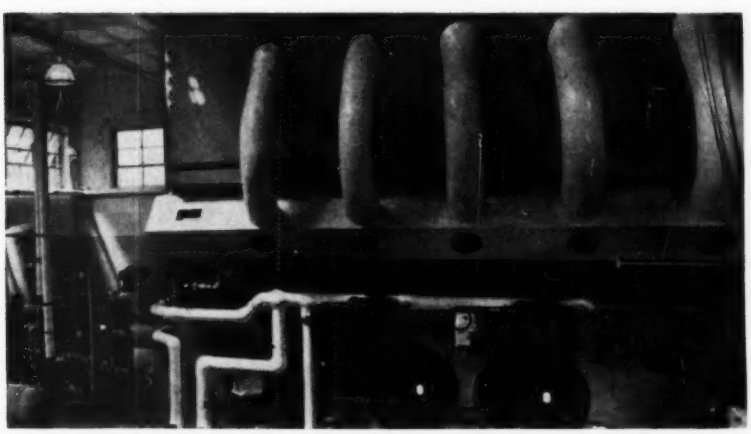
THIS OUTDOOR PIPE LINE is insulated with 2½-in. 85%-magnesia coating on the steam main and a 1-in. coating on condensate-return line.

How a Modern PIPING SYSTEM Was Insulated

▸ To prevent heat loss in a 2,000-ft. steam-pipe system, outdoor and indoor piping at A. D. Ellis Mills was covered with 85%-magnesia insulation. The outdoor piping was weatherproofed, and the indoor piping was covered with rosin paper and 8-oz. canvas. Road mesh, silica, and asbestos were used for special purposes in the insulating job.

By H. E. McGREGOR

THE STEAM MAIN and condensate-return line between Mill 1 and the new boiler plant (located adjacent to Mill 3) at A. D. Ellis Mills, Inc., Monson, Mass., runs across the mill pond and under a roadway—2,000 ft. in all. To avoid heat loss, Ellis called in Johnson Asbestos Co., Springfield, Mass., to help engineer a complete insulation job.



INDOOR PIPES are insulated according to the pipe size and operating temperature. The pipes are wrapped with rosin paper and 8-oz. canvas over the 85%-magnesia insulation.

Here is how the outdoor lines were made weather-tight and the indoor piping system was insulated.

First, the piping was welded, pressure-tested, and cleaned of dirt, scale, rust, and construction debris. Then the 6-in. steam mains were covered with a 2½-in. 85%-magnesia coating, secured with 18-gauge annealed-iron wire. A 1-in. insulation was wired to the 2-in. condensate-return line. Joints were closely butted and, where necessary, were pointed up with asbestos insulating cement.

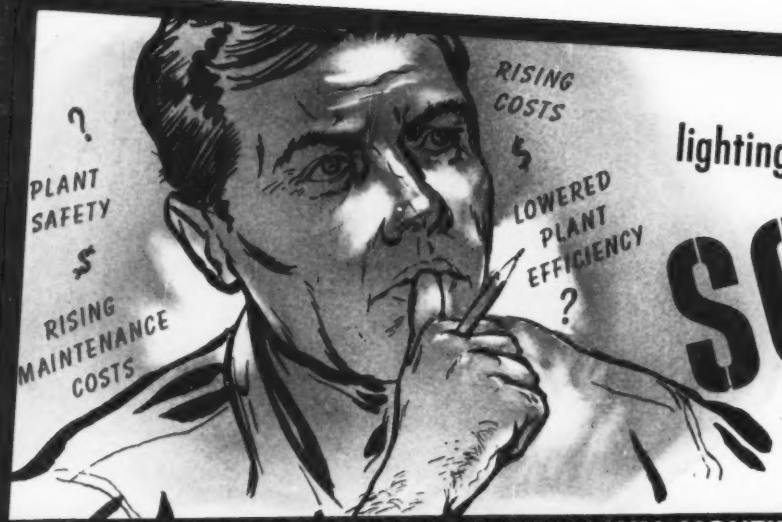
Next, a heavy jacket of asphalt-saturated asbestos roofing felt was applied. This jacket was lapped at least 3 ins. along the edges. The seams were sealed with asphaltic weatherproofing compound, and the insulation was fastened with corrosion-resistant straps on 6-in. centers.

Thickness Depends on Size

The indoor piping was insulated in a similar manner; the thickness of the 85%-magnesia coating depended on the pipe size and operating temperature. Instead of the weatherproof finish, the pipes were wrapped with paper sized with rosin and a jacket of 8-oz. canvas was pasted on the paper.

An 85%-magnesia coating was applied to the boiler-room auxiliaries and duct work. For operating temperatures below 350° F., the auxiliaries and duct work were insulated with 1½-in. 85%-magnesia blocks; for temperatures be-

(Continued on page 206)



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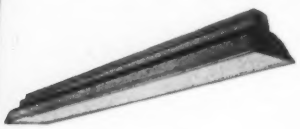

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BENJAMIN "Magna-Flo" Systems *described in Manual #1*

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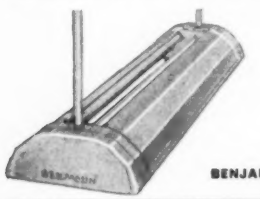

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BENJAMIN "Task-Master" *described in Manual #2*

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A rugged lighting unit for steel mills, foundries, sheet metal works, and other locations where the lighting units must be guarded against damage from rough handling, flying metal particles, severe mechanical strain or unfavorable atmospheric conditions.

BENJAMIN "Steelite" *described in Manual #3*

☐ **4.** incandescent lighting of **GENERAL PLANT AREAS**

This unit inexpensively matches a variety of general seeing tasks; also for stairways, materials handling areas, etc. Exclusive "Turnlox" detachable reflector cuts time required for cleaning and relamping.

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BENJAMIN "Stock-Bin-Lite" Reflector *described in Manual #5*

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For locations listed by U.L. as Class 1 Groups C and D. Recommended for areas where explosive atmospheres or inflammable dust is found. Available in a choice of four reflectors and a variety of mountings. Especially constructed to withstand the tremendous pressure of internal lamp explosion.

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Listed "Vapor-Tight" by U.L. Suitable for use in locations exposed to moisture or non-combustible dust, corrosive fumes, vapors, dust and smoke. Rugged construction, unbroken surface of Porcelain Enamel and heavy-gauge steel assure long life without breakdown or frequent servicing.

BENJAMIN "Vapor-Tight" Units *described in Manual #7*

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BENJAMIN "Play Area" Floodlight *described in Manual #8*

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Here's the carding portion of the last Alabama TOE meeting, at which these facts were brought out—

- Four mills using N. C. State settings on high-speed lickerins improved quality
- Picker-lap tolerance is ±½ lb. in nine mills
- Five mills check roving daily
- Roving-frame stop motions improved quality in three mills out of four

Alabama Carders Talk About Evenness Control

High-Speed Lickerins

Out of 16 mills reporting on high-speed lickerins, seven mills had experimented with speeds over 700 rpm. In all four cases where the N. C. State settings were followed, neps were reduced and quality improved. Mills using high lickerin speeds with regular settings reported no improvements.

One mill reported that maintenance was high where regular settings were used on 78 warp cards with a 752-rpm. lickerin speed. Almost-new lickerins were necessary because a dull or slightly burred lickerin caused the surface to felt over with cotton fibers, and this condition decreased quality. Belts showed excessive wear because of slippage.

Most mills working with the N. C. State settings were interested primarily in quality improvement. One mill running 1 1/16-in. middling cotton reduced nep count considerably on 45-in. cards at a speed of about 7 lbs. per hr.

Lickerins were run at 780 rpm. in one mill. Nep count and cleaning were improved in carding at 11 to 18 lbs. per hr., and quality showed no difference from that at 7 lbs. per hr.

One mill set up 12 cards using the recommended settings, flat speeds, and lickerin speeds. Although card fly was increased 62.3%, flat strips were 38.1% less, and neps were 8.5% less. Yarn appearance was better, and the cloth showed fewer neps and a fuller appearance.

Flat speeds were changed from 2.75 ins. per min. to 1.7 ins. per min. Lickerin speed was increased from 430 rpm. to 800 rpm. These settings were made closer—flats to cylinders, feed plate to lickerin, mote knife to lickerin. The cylinder screen was set further away.

Weight Control Of Picker Laps

Nine mills reported that the tolerance allowed on picker laps is ±½ lb., five mills' tolerance is ±¾ lb., and one mill's tolerance is ±1 lb. Most mills weigh each lap as it is doffed. In one mill, second hands recheck eight laps each shift. Relative humidity is kept at 50% in three mills, 55% in three mills, and 60% in seven mills. Two mills have no humidification system in the picker room.

One mill, without humidity control, checks one lap on the lap meter from each picker every four days. Pickers that show over 5% yard-to-yard weight variation are adjusted. The lap-meter tolerance at another mill is ±0.4 oz. Two laps per picker are checked every month.

A monthly routine picker-card test is made at one mill with 24 1-yd. weighings of card sliver; eight weighings are made from the beginning of a lap, eight from the center, and eight from the end. The laps must be within tolerance, and laps from specific pickers go to specific cards.

A moisture indicator is used in eight mills to show the adjustment needed in picker-lap weights.

Weight Control Of Card Sliver

Only one mill reported no checks on card sliver, while one mill checked for information only. Mill B reported that 5 yds. of sliver from each card is weighed to determine an average weight per card. Sliver is weighed from 45 cards per week. All cards are checked every three weeks. The tolerances are ±3.3 grs. per yd. for warp sliver and ±2.4 grs. per yd. for filling sliver.

Mill C checks each card every eight weeks. The tolerance is ±5 grs. for 60-gr. sliver. Mill H weighs card sliver three times each week under laboratory conditions of 70° F. and 65% r.h.

Mill J's standard sliver weight is 70 grs. with no tolerance. For size variation, small samples are taken at random over the whole room. One-yard lengths are cut, conditioned, and weighed to the nearest grain. The results are expressed as a maximum range of variation (6xC.V.) and serve as a barometer of over-all sliver weights. About 100 samples per day are weighed, and the weekly results average about 20 to 25%. A special cutting board is used to cut 15 to 20 samples at once.

Mill M checks one-third of its cards

in each room every month; so each card is checked every three months.

A foreman at Mill J checks the lap

☐ 7. Humid Locations
☐ 8. Industrial Floodlighting

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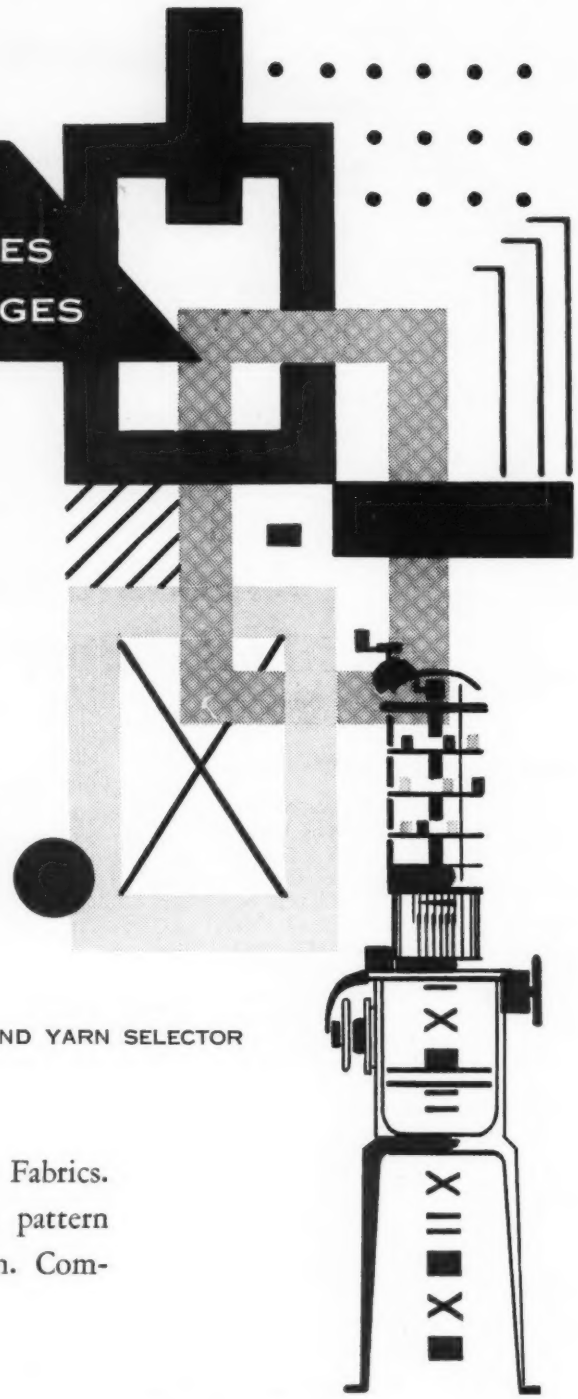

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SINCE 1911

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Export Dept.:
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Canadian Representative:
W. J. Westaway Co., Ltd., Hamilton, Ontario, Canada.

in each room every month; so each card is checked every three months. Cards are checked across the room to include all sections and mixes. Samples 1 yd. long are measured on a board. The tolerance is about ±5 grs. per yd. Mill D runs 56-gr. sliver and weighs 1 yd. from 10 cards each day. The tolerance is ±1.6 grs.

Two mills reported using 50% r.h. in the card room, four mills use 55%, and five mills use 60%.

Weight Control Of Drawing Sliver

Seven mills reported a daily testing of drawing sliver; two mills test weekly, one tests monthly, and two do not test drawing sliver at all.

Mill B weighs 5 yds. of sliver from each delivery to determine an average weight per delivery each week. The tolerances are ±3.6 grs. for warp and ±1.5 grs. for filling sliver.

One mill sized breaker drawings on five consecutive days and adjusted weight by changing the draft on the crown gears. The same five days' sizing was done on finisher drawing after adjusting the breaker weight, and now sizing is done only weekly. Little change of finisher-drawing gears has been necessary since getting the correct weight on the breaker frames. The tolerance is ±2%.

Gears are changed in one mill if the tolerance exceeds 10 grs. Finisher-drawing sliver is checked daily with all the deliveries from one frame weighed together.

Mill P runs 57-gr. drawing sliver, weighs 1 yd. from each of eight heads every day, and allows a tolerance of ±1.9 grs.

Drawing sliver is run at 55% r.h. in all mills but two, where 60% is used.

Weight Control Of Roving

Two mills test roving weekly, but 14 mills test roving daily. Mill A checks five bobbins per hank roving per day. The tolerance allowed varies according to the hank roving as follows: ±0.04 on 1.5-hk. roving, ±0.09 on 2.1-hk. roving, ±0.10 on 4.75-hk. roving, and ±0.18 on 6.65-hk. roving. If three days' weighings fall between 1 and 2 in coefficient of variation, a gear change is made.

Mill G posts a schedule of frames to be sized at the sizing table. The schedule is arranged to rotate the different frames by sizing eight bobbins from each of seven frames every morning. These bobbins are gathered at random from the frame and placed in a roving rack at the sizing table.

DWIGHT EPPERSON, superintendent of West Boylston Mfg. Co., Montgomery, led the spirited carding discussion.

The relative humidity and temperature are recorded on the size sheet before 12 yds. are weighed from each bobbin. The weights are rechecked for accuracy when they vary outside normal extremes. Eight bobbins of the average hank roving of each style are tested for regain, carried to the spinning room, spun into yarn, and sized. This mill does not control card-sliver or drawing-sliver weights.

Mill I tests at least 10 bobbins from each frame with different gearing and allows 3% tolerance in the hank number. Draft gears are changed if 1.08-hk. roving is 0.02 hk. heavy or light.

Mill J has standard roving weights of 0.50, 0.55, 0.92, 1.25, and 1.50 hk. The tolerance is ±4% and is based on actual experience over a long period. Six bobbins per frame from 12 to 13 frames are tested daily. The same length (6 yds.) is reeled from each bobbin of heavy and light roving, conditioned, and weighed.

Mill P weighs five bobbins of each roving type daily and allows the following tolerances: ±2 grs. on 1.00-hk roving and ±0.3 gr. on 2.80-hk. roving.

Seven mills run 55% r.h. at the roving frames, three mills run 60%, and two mills run 65%.

Evenness Control Of Picker Laps

Five mills allow up to 2% coefficient of variation in picker laps. Pickers producing laps with higher variation are corrected. Two of these mills test daily, two weekly, and one monthly.

One mill determines its standard C. V. of 1.25 to 1.75 by the respective grades of cotton and mixes. Two mills check their pickers when the chart shows less than 90% of yards within the limit of ±¾ oz.

A foreman at Mill J checks the lap scales for accuracy at least once each shift. Periodic checks are made on the gross lap weights by taking a wagon of laps and reweighing it to let the tenders know that they are being checked. All set-back laps are run on certain pickers adapted for that purpose.

Pickers are checked twice a month a Mill M on a lap meter, and the C. V. is calculated. Once a month a lap is taken from each picker and set in a definite card. Short-range variations are determined from 24 sliver weighings from various parts of the lap. If the C. V. is worse than the previous month, the picker is checked. Pickers equipped with air-control gates are cleaned twice as often as regular pickers.

Evenness Control On Card Sliver

Mill A's tolerance on card-sliver evenness is 4.7% mean linear variation. When a sample exceeds tolerance, another sample is taken after a new lap is laid, and the two samples are averaged. If the average exceeds the tolerance, the card is stopped until it is fixed. Ten cards are checked daily. Each card is ground the day before checking. A 10-yd. length from each card is tested.

Mill B tests 45 cards per week. The evenness tester runs at 8 yds. per min. The tolerance allowed is an integrator reading of 3.4. Nep count is taken daily on 15 warp and 15 filling cards. The maximum neps allowed are 12 per 100 sq. ins.

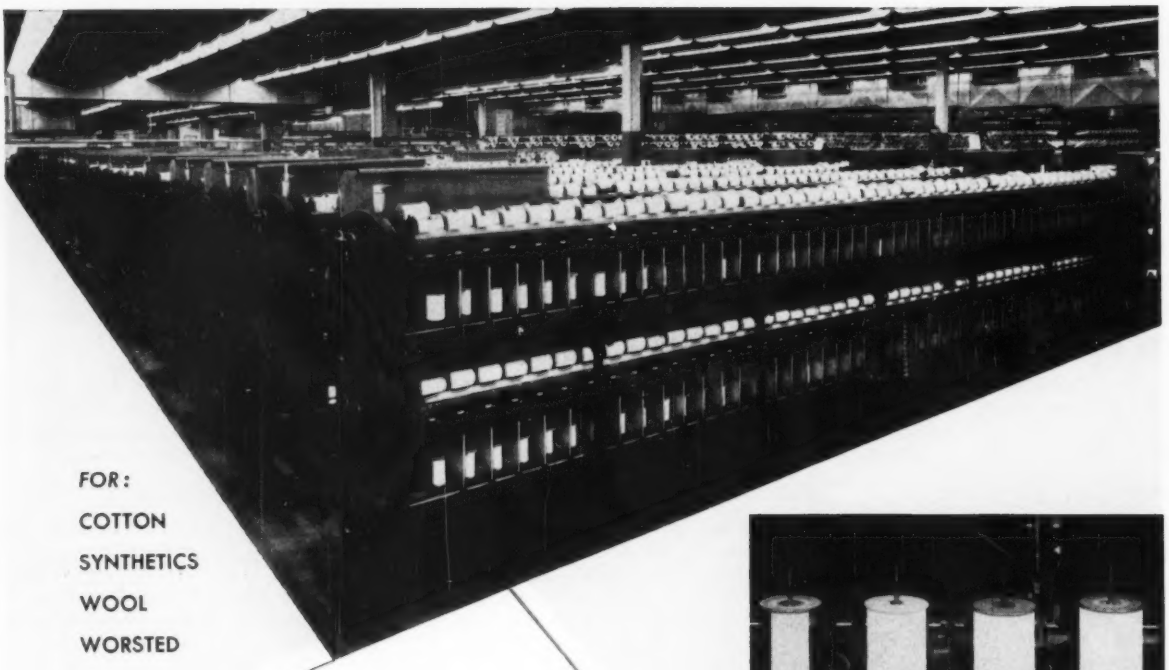
Approximately 30 yds. of sliver are tested daily at Mill J from about 10 cards 24 hours after grinding. Average weight is determined from a 6-yd. reeling, and the remaining 24 yds. are run on the evenness tester. A chart is made of the first 20 yds. and readings are taken at 1-min. intervals from the quadratic integrator. The final results are expressed as the maximum range of variation (6xC.V.). The results average about 37%.

Evenness Control On Drawing Sliver

The tolerance for breaker-drawing sliver at Mill A is 4.5% mean linear variation, and 4.9% for finisher drawing. Ten yards from each head from four different frames are tested daily. The sliver is tested at 4 yds. per min.

A weekly test is made on each delivery of drawing at Mill B. A comparison is made of actual weights per delivery to show the variation by weight. The tolerance in integrator

(*Continued on page 182*)



FOR:
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WOOL
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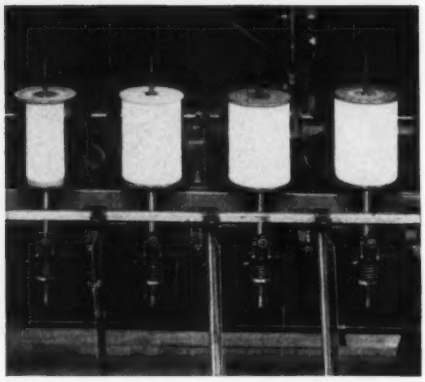

Marquette
Roller Bearing Spindles

with **FULL-FLOATING FOOTSTEP BEARING**

This mill tested a frame of Marquette Roller Bearing Spindles in 1945, and now has 32,354 of these spindles in operation. As in other mills, Marquette Spindles have been purchased on the basis of their *superior performance.* They produce MORE YARN AT LOWER COST—because they carry large packages at high speeds, with no increase in power consumption. We'll be glad to prove, through a test installation, that Marquette Spindles will give the same results in *your* mill. Contact our home office or one of our representatives.

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The Marquette METAL PRODUCTS COMPANY

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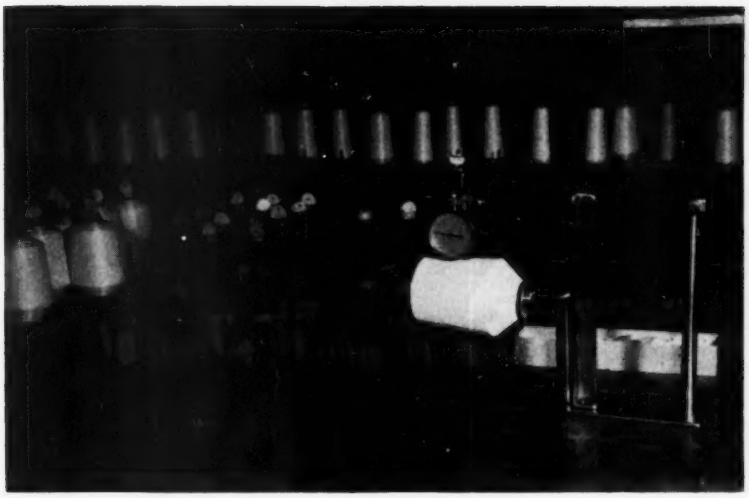
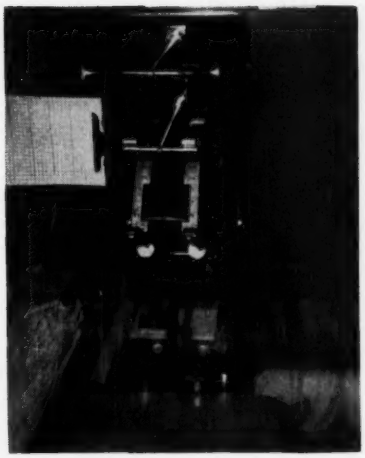


YARN DENSITY is checked on each cone of splicing yarn to insure even selvages. Cones of like density are used on the same section.



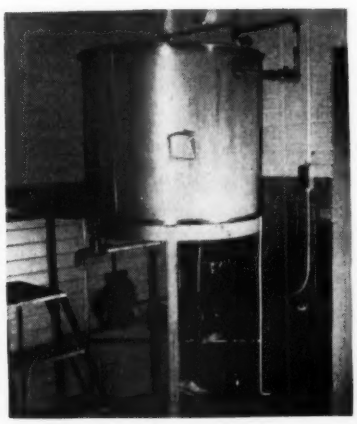
SELVAGE TESTER is used to check each knitting head every week. Variations in knitting are determined by measuring length and not by counting courses.

5 Tips To Reduce HOSIERY Seconds

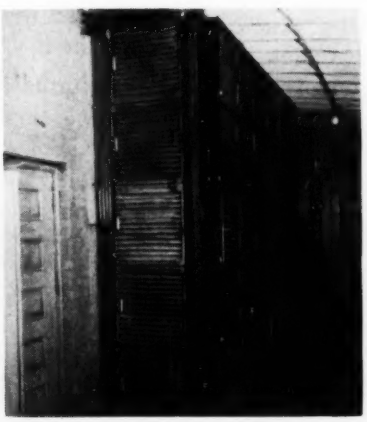
To keep full-fashioned seconds to a minimum—

- > **1.** Test splicing yarn for density
- > **2.** Check length variations on a selvage tester
- > **3.** Double check length control
- > **4.** Mix trough solutions thoroughly
- > **5.** Clean, condition, and control the air supply

By **JAMES H. BLORE,** Assistant Editor, TEXTILE WORLD



TROUGH SOLUTION, mixed in this tank, is agitated by a pump below the tank. Solution from the tank is moved by a wheeled container to the knitting machines.



AIR FILTER is situated so that air from the knitting room can be readily mixed with outside air. Filter sections are changed every five weeks.

A HIGH PERCENTAGE OF first-quality hose is obtained at Shannon Hosiery Mills, Columbus, Ga., through a system of checking density of cones, reducing handling to a minimum, checking length and not courses, double checking on length variation, and filtering the mill's air supply.

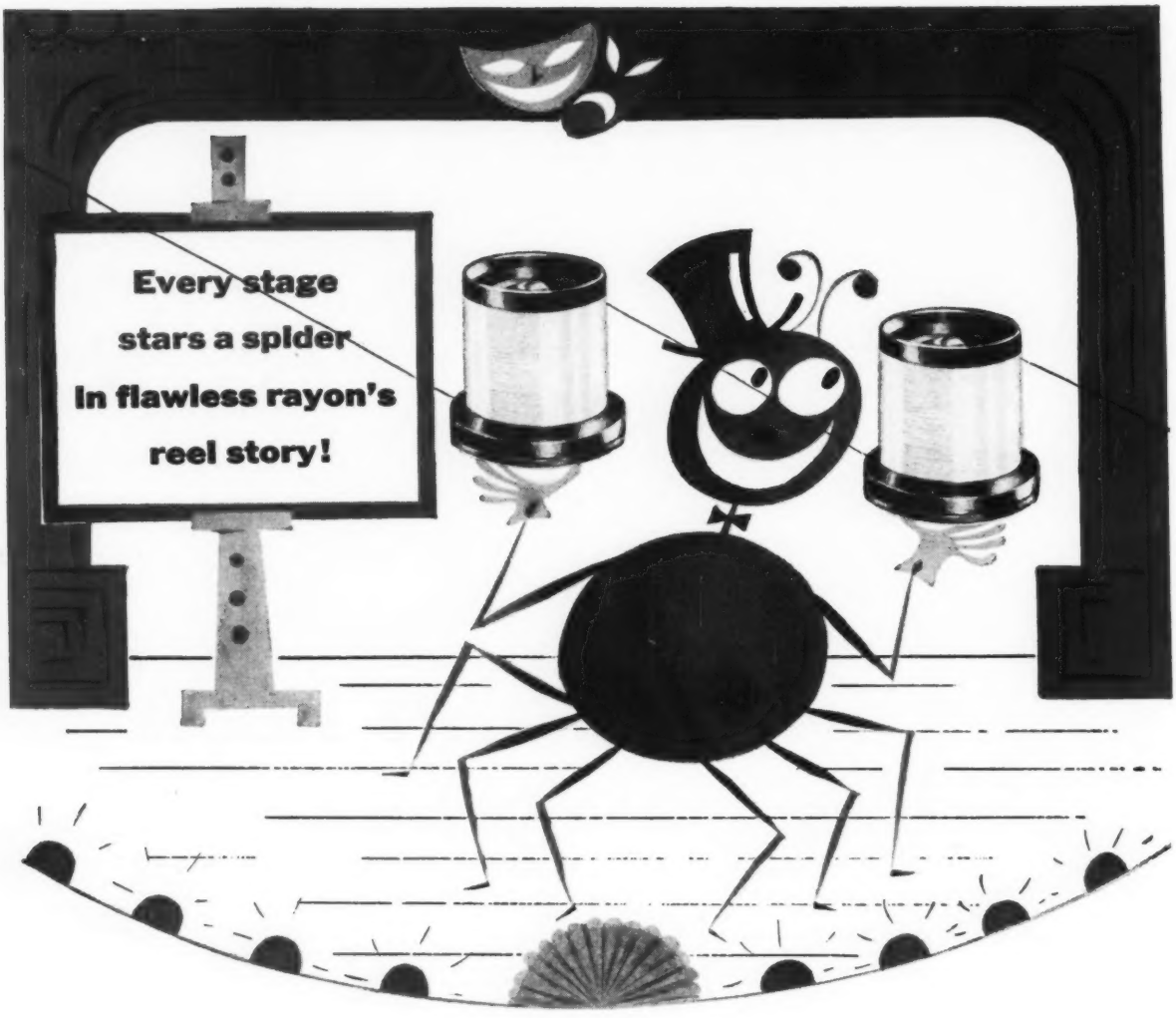
Cones Are Checked for Density

All heel-splicing yarns are checked for density of winding on the cones. It has been found that cone density varies as much as 40 units, enough variation to produce tight stitches from the harder-wound cones. When a hard-wound cone is used for the left heel splicing and a soft-wound cone for the right splicing, the left selvage is tighter than the right selvage; and trouble is encountered in seaming.

To insure that all splicing yarns are of nearly equal densities, each cone is tested on a Type A-2 Durometer-Hardness tester. (For splicing yarn, Shannon uses 40 den. for 51 gauge, 30 den. for 60 gauge, and 50 den. for colored heels.)

The cones are placed on the horizontal spindle of the tester, and the dial indicator is brought down on the yarn. A reading is taken from the dial, and a ticket with the density reading is placed on the cone. Cones of near density (± four hardness units) are kept together, and two

(*Continued on page 202*)

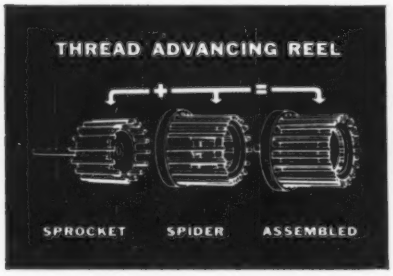


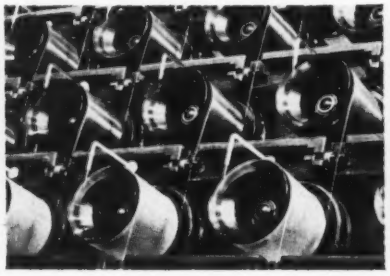
CONSISTENTLY FLAWLESS PERFORMANCE from rayon is assured by more than 150,000 spiders working at every stage of Industrial Rayon's Continuous Process.

SPIDERS ARE THE YARN CARRIERS of IRC's famed thread-advancing reels. They make it possible for yarn to travel from reel to reel for individual thread treatment. Yarn is uniform inch by inch as it is spun, bleached, washed, dried, treated and twisted in one continuous sequence of operations.

THIS IS THE SECRET of complete uniformity of denier, strength and quality . . . never possible when rayon yarn is produced by ordinary methods. Because the yarn is untouched by human hands, knots and broken filaments have been virtually eliminated.

CONTINUOUS PROCESS is the one process that saves weavers costly rejects due to chronic yarn imperfections. No wonder IRC rayon has become the quality standard among quality weavers.





IRC
Industrial Rayon Corporation
Cleveland, Ohio
Sales Office: 500 Fifth Avenue, N. Y. 36

COTTON - spun rayon - and wool

Pointers FOR SUPERVISORS

How To Win an Arbitration

► Follow these principles and you'll have a better case if you ever have to go to arbitration. Even if you don't have a union in your mill, you'll find these are good rules for improving employee relations.

By PAUL A. KING
Attorney, Bigelow-Sanford Carpet Co., Inc.

A SUPERVISORY job today is far from a cinch. In addition to knowing the work he oversees, the supervisor is expected to have at least a running knowledge of:

Training methods so that he can develop his men to work at top efficiency

Industrial psychology so he can get his men to do their best without feeling that the boss is pushing too hard

Safety methods so he can help his men operate free of accidents

Public speaking so he can stand up at a supervisors' meeting and present his story effectively

Business economics so he can explain to his workers the relationship of their company to their jobs

Personnel administration so he can avoid a union when there is none and get along with one where there is one

Nursing so he can prescribe for that hung-over feeling, sympathize with the big poker loser, and understand Joe's trouble with his mother-in-law

Now comes a new skill to be acquired by the supervisor in a union shop—the art of arbitration.

It seems that organized labor is awakening to the importance of learning how to win an arbitration.

Just a little while ago the CIO Electrical Workers in New Jersey put on a practice arbitration. Eighty representatives from 40 locals learned when to go to arbitration and how to prepare a good case.

Wise supervisors will bone up on the same subject. Here are a few principles generally followed by arbitrators. Heed them and you have a better chance of winning an arbitration. Even if you don't have a union, you'd still be wise to follow them; they make for better employee relations.

1. **The punishment must fit the crime.** Countless times cases have been kicked out by arbitrators because the penalty was too harsh for the offense; for example, discharge for a long-service employee the first time he blew his top and swore at the boss.
2. **Put up or shut up.** Post rules. If they're not posted, at least the workers should be aware of them. Arbitrators will jump on the supervisor who springs a new or little-known rule on his men.
3. **Rattle before you strike.** Even if the worker knows of the rule, unless the infraction is very serious, arbitrators like to see the worker get a warning first.
4. **Don't change horses in mid-stream.** Employees, arbitrators say, are entitled to rely on past practices or customs. You can't change them and expect the employees to hop to it overnight. They must be warned of the change before they can be held accountable.
5. **Your time is your time.** And an employee's time is his time. So long as he does his job, what he does at home is not your concern unless his home activities are designed to injure the reputation of the company (such as sending letters to the newspapers unfairly criticizing it).
6. **Play no favorites.** Nothing will do your case more harm than punishing one worker and letting others go scot-free for the same offense. Treat them all alike.

So much for the rules. There are many others. But when you look closely, there isn't anything magical about them. They're just good common sense.

Proving that you lived within these rules may be another matter. Here are some tips on making your case stick:

1. **Put it in writing.** Any warnings given workers should be in writing. Any evidence of bad performance should be reduced to writing. Written evidence is the best evidence.
2. **Have witnesses.** The best witness is often the shop steward.
3. **Don't blow your top.** Sure you'll get mad. But that's when the wrong thing is apt to pop out. Count 10 or 20.
4. **Be objective.** Be sure you have facts. Try to make your judgment as accurate as the tachometer you have on your desk.

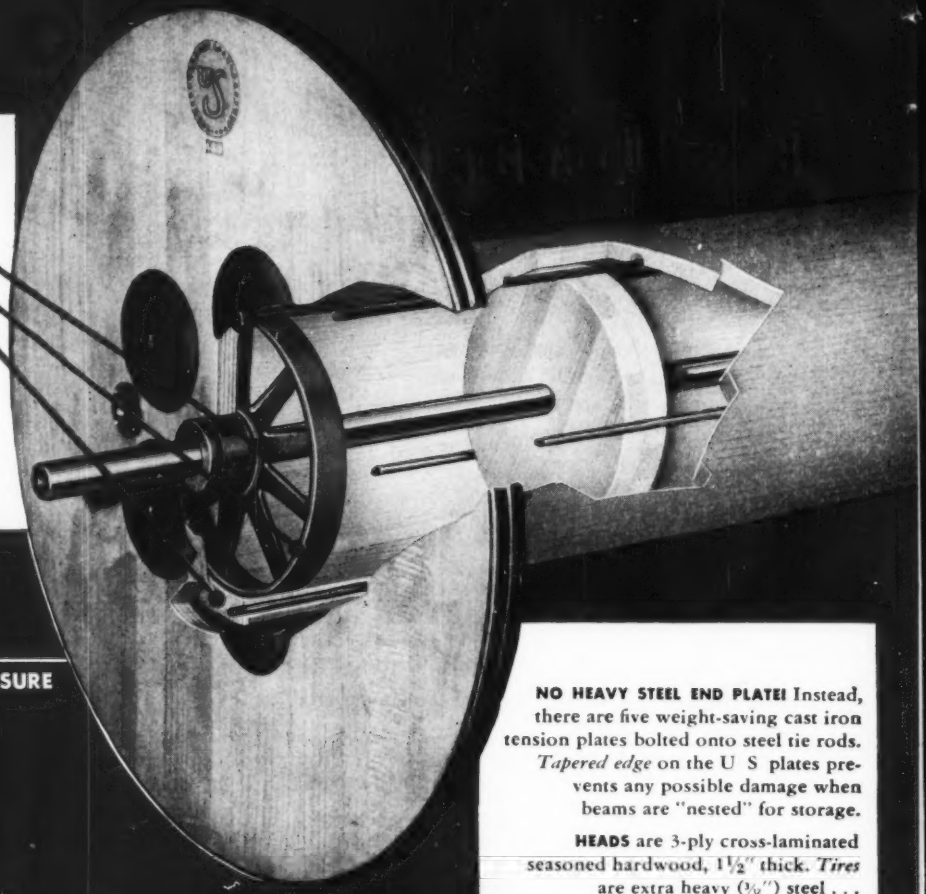
These are good tips even if you don't have a union. They'll help you make a case before the superintendent, and they'll satisfy the employee that you have the goods on him.

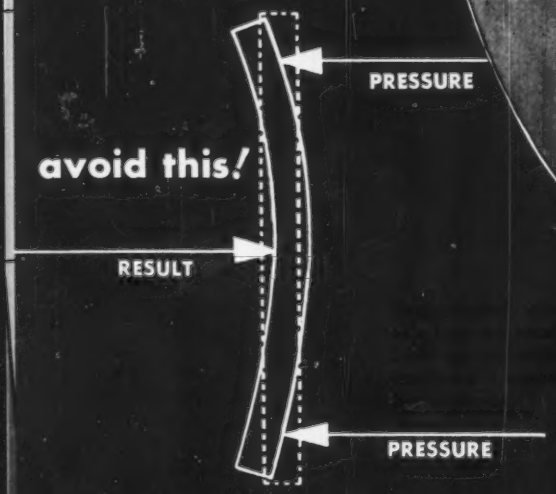
COTTON...spun rayon...and wool

3-POINT SUPPORT FOR THE BEAM HEAD

shoulder at hub of casting
periphery of casting
ends of staves

U S Warper Beams are *all* built with 3-point support, which provides additional resistance against outward deflection during build-up of the beam.





NO HEAVY STEEL END PLATE! Instead, there are five weight-saving cast iron tension plates bolted onto steel tie rods. *Tapered edge* on the U S plates prevents any possible damage when beams are "nested" for storage.

HEADS are 3-ply cross-laminated seasoned hardwood, 1½" thick. *Tires* are extra heavy (3/32") steel . . . grooved, heated and shrunk-fitted onto the heads for tighter assembly. Eastern pine barrel staves are supported at each end by round cast iron supports.

U S BOBBIN & SHUTTLE CO.

SEND FOR SET OF BLUEPRINTS
and Bulletin CWB
for detailed construction features of U S Warper Beams, Heads and Tension Plates for Cotton, Spun Rayon and Wool.

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THE SEAL OF QUALITY AND SERVICE
US
SINCE 1857

Exploring

The Textile Community

Open House Opens the Door To Better Community Relations

▶ This New England company invited the neighbors in to see how an up-to-date textile mill operates and what it means to the community. Having visitors by the thousands meant a lot of hard work, but the time and effort were repaid in increased understanding of mutual interests.

By MILDRED BARNWELL ANDREWS

TIME WAS WHEN OPEN HOUSE was practically unknown in the textile industry. Many mills considered the effort involved in such a project to be too time consuming. Other mills just didn't consider it at all.

Today times have changed, and open house is a rather frequent event in textile-mill areas. Each open house is good, and each serves a purpose.

One excellent event of this type was the open house held by Hathaway Manufacturing Company in New Bedford, Mass. This week-long showing of hospitality was in the nature of a celebration of the completion of Hathaway's fifteen-year program of mill modernization. It was to acquaint the people of New Bedford with the up-to-date and modern mill and to show them how—and why—that mill can compete on a national scale with mills in lower-cost areas.

Hathaway's open house was four months in preparation. During that time booklets were prepared for distribution to guests. They covered the history of the company, glossary of terms, description of processes, and economic facts-of-life relating to Textile New Bedford: payrolls, capital investment, production in yards and dollar value, etc. Also included were a roster of employees who had been with the company twenty-five years or more, a list of open-house committee members, and an invitation to mail suggestions, observations, or criticisms to a designated Hathaway official.

A route through the plant was mapped out. Machine operations were described in understandable laymen's language. On large cardboard placards mounted along the route, suitable displays were arranged for each department of the mill and were set up on stair landings, in the halls, and in odd corners of the plant to lend a decorative, gala atmosphere to the mill.

At a point about midway of the visitors' tour route, a large refreshment area was prepared for serving soft drinks and cookies to the guests. Tables, booths, and chairs were provided. The area was decorated with Hathaway products, and the mill windows there were draped with Hathaway marquisette curtains.

Everything to make the visitors comfortable and happy, including attractive souvenirs made from Hathaway products, were included in the planning.

When open-house week approached, formal invitations were sent out to an extensive mailing list. Although the tour was open to the public, free of charge, tickets of admission were issued in order to control the number of visitors each day.

Each employee of the mill was designated host-by-proxy and given four tickets for his personal guests. The balance of the tickets were distributed to leading merchants in the community, and the public was advised through press and radio announcements where tickets could be obtained. By cooperation with a local company, a special bus carrying a banner—"Free Transportation: This

(Continued on page 185)

THIS SAMPLE LOOM was set up in the exhibition area to weave labels that were given away as souvenirs to visitors at Hathaway Manufacturing Company's open house.

A New Masterpiece of Design

This masterpiece of design and workmanship, the Rospigliosi Cup, was created in the sixteenth century by the famous Florentine goldsmith Benevenuto Cellini.

Like all honest craftsmen, we strive for the finest in design and workmanship. For over fifty years Van Vlaanderen has built superior jigs. Our newest, The Dyemaster, is the last word in an all-fabric jig.

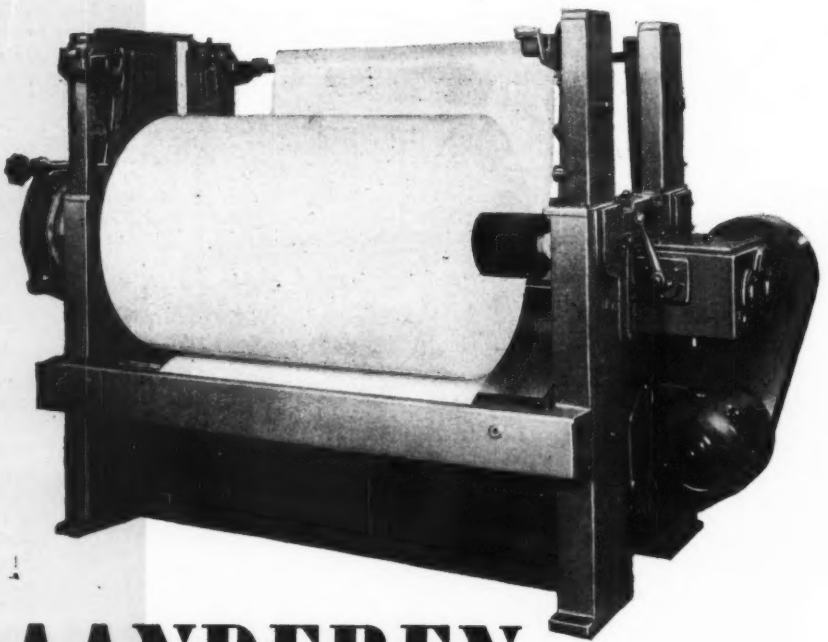
The Dyemaster is built to meet the exacting requirements of American dyers, with American standards, parts and dimensions. It is the most versatile jig built today.

CONSTANT CLOTH TENSION. The Dyemaster can be preset for practically no tension for sheers to full for cotton ducks.

CONSTANT CLOTH SPEED. The Dyemaster achieves near constant cloth speed through a special differential transmission—greatly contributing to even dyeing results.

AUTOMATIC CONTROL. The Dyemaster has a new control which can be preset to automatically control starting, reversing and stopping after predetermined ends. Quality dyeing becomes much less dependent on the operator's alertness and skill.

OTHER FEATURES. A new main drive gear box, especially designed for this machine by Van Vlaanderen for the highest efficiency; 34 in. batch rolls for highest production; tension-free loading and unloading by exclusive Van Vlaanderen arrangement; oscillating expander, now equipped with dampening device for smoother reversing; 15 in. brakes with malleable iron brake-lined shoes and over-running clutch; totally enclosed transmission and chains running in oil; stainless steel tub, bearings and other parts liable to corrosive action. Why not arrange to see this machine in action? Phone, write or telegraph for appointment.



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MACHINERY AND SUPPLIES

TEXTILE Equipment NEWS

Carding Units Use Sliver To Make Knit Pile

A new circular knitting machine made by Wildman Mfg. Co., Morristown, Pa., has a carding unit at each of its four feeds. The unit, consisting of a cylinder with two workers, two strippers, a lickerin, and a doffer, feeds card web to the needles to be formed into a pile.

The units, driven from the gear ring, supply fibers to the needles when the needles are in their high position. The doffer takes the fibers from the cylinder and sweeps them up into the needle hooks.

Each tuft of pile is securely locked in place as the needles are drawn down and a yarn fed to the hooks to form a jersey stitch. A central vacuum system removes the small loose fibers and deposits them in a box to be reclaimed. An air system blows the fibers to the cylinder center to position the fibers as the needles are pulled down by the stitch cam.

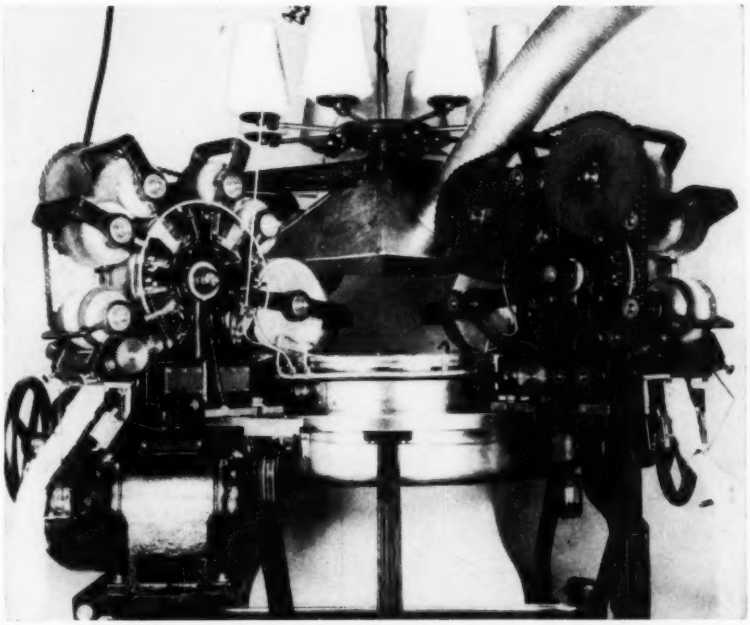
The depth of pile depends on the length of staple in the sliver, although staple lengths need not be constant. Cotton, wool, horsehair, acetate, nylon, or Dynel can be used alone or in blends. Up to four slivers can be used at one feed. The lickerin speed can be changed to regulate the density of pile. A high lickerin speed with a heavy sliver gives a dense pile.

There is no tie-in thread, and the backing can be made from any fiber and given a stiff finish with a resin or latex compound.

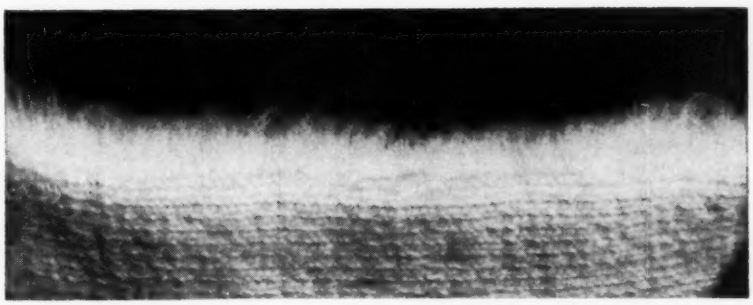
The workers and strippers do not need lubrication because they run in grease-packed ball bearings. A 1½-hp. motor supplies the power from an individual drive. Conventional sinkers are used, and an electric stop motion guards against sliver and thread breakage.

The needle-cylinder speed is about 20 rpm. A 23-in.-dia., 10-cut machine produces about 5 yds. of 54-in. fabric per hour. A cotton-backed fabric with medium-length Dynel pile weighs 0.893 lbs. per sq. yd.

Some fabrics may be used directly from the machine without finishing.



CARDING UNITS on this four-feed knitting machine convert sliver into card web to be taken by the needles and formed into a pile and knitted into the fabric.



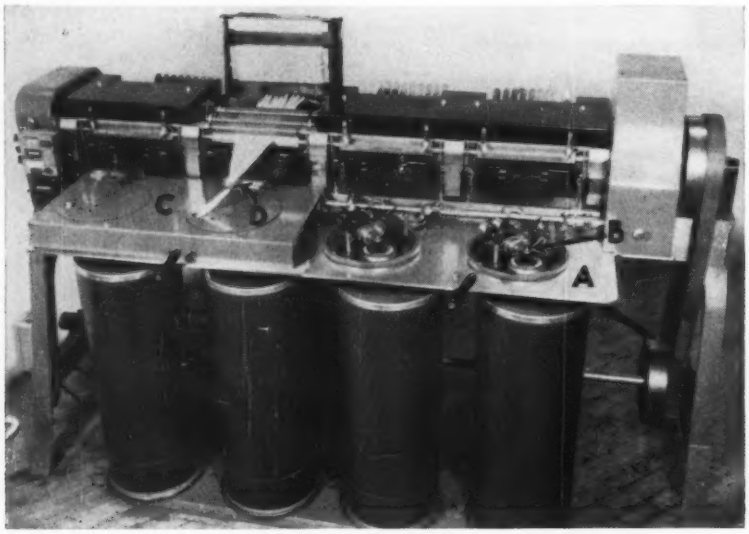
DENSE PILE is obtainable by speeding up the lickerin and feeding several slivers. This Dynel fabric with cotton backing has just been taken from the machine.

It is expected that the new fabric will be used for garment linings, floor coverings, shoe linings, toy coverings, and many similar uses.

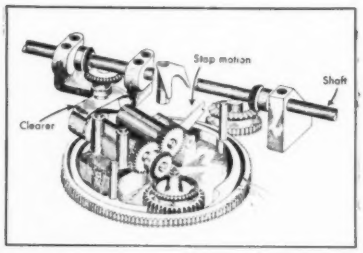
Circle T-1 on Reader-Service Card

TEXTILE *Equipment* NEWS

Drawing-Frame Coiler Reduces Static Problem



NEW COILER ASSEMBLY replaces conventional calender roll and tube gear. *A* is a plate support, *B* is the Positube assembly, *C* is the removable cover, and *D* is a stationary guide.



POSITUBE has no tube gear to cause static electricity troubles. It has a clearer to keep the calender surfaces clean and a step motion that operates when a sliver breaks or the calender chokes.

A new drawing-frame coiler assembly, the Positube, designed for the processing of synthetic fibers, wool, and blends of the two, is in production at Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass. It has no tube gear to cause static-electricity processing troubles, and it can be applied to conventional drawing frames assembled on a five-roll chassis.

The assembly was designed to minimize the difficulty of getting the sliver from the nip of the drawing-frame calender roll through the tube gear into the can.

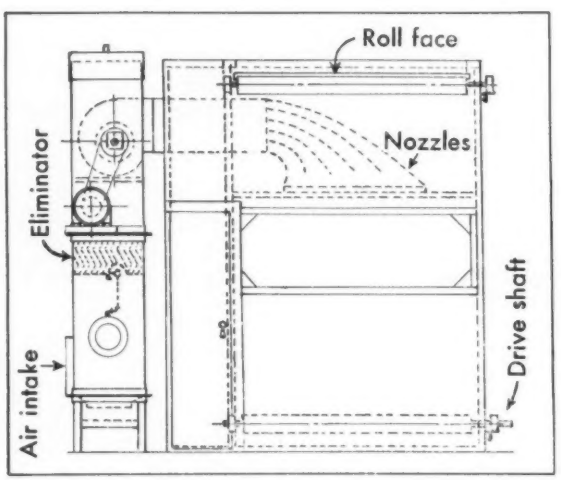
The new assembly *B* replaces the conventional calender roll and tube gear. It is supported by a steel plate *A*, which is fastened to the roller beam. A stationary guide *D* is mounted on a removable cover *C*. The sliver passes from the nap of the front roll, through the guide, and into the nip of the coiler. The coiler assembly, including its circular-plate cover, is driven from the main shaft through a bevel gear.

A dual-acting stop motion stops the frame when (1) the sliver breaks between the front rolls and the small calender rolls, or (2) there is a choke on the calender. In the first instance, the calender rolls swing together and raise the lever into contact with the stop-motion fork. In the event of a choke, the calender rolls swing apart and depress the lever into contact with the other prong of the fork.

A clearer keeps the calender surfaces clean.

Circle T-2 on Reader-Service Card

Conditioning Machine "Fixes" Resin-Treated Fabrics



The Temperdaire cooling and conditioning machine for processing resin-treated fabrics of cotton and the newer fibers has been announced by James Hunter Machine Co., North Adams, Mass.

After drying and curing, the fabric is at a temperature of over 300° F. If it is rolled at this temperature into large rolls or folded, there is the danger of shaded goods, migration of dyes, tendering, or post-curing polymerization. The Temperdaire "fixes" the cloth at the most desirable point, cools it to normal temperature, and conditions the fabric.

Water-cooled air is blown on the cloth through nozzles. This moist cold air reduces the cloth temperature to a predetermined point, and it also adds to the moisture content of the fabric, which is generally below desirable limits at this point.

CONDITIONING MACHINE "fixes" resin-treated fabric at the desired temperature, cools it to normal temperature, and conditions it.

Circle T-3 on Reader-Service Card

powdered desizers ?
take your choice...
the best are **NEOZYMES**
-made by
ROYCE

NEOZYME® | NEOZYME® HT

IDEAL FOR LOW TEMPERATURES...
for heat-saving desizing at 120° to 125°F

OUTSTANDING MONEY VALUE...
1 pound equals 8 pounds of liquid enzyme

SPACE-SAVING...
concentration cuts storage space 87½%
and saves handling cost

IDEAL FOR HIGH TEMPERATURES...
for efficient desizing at 160°F

CONCENTRATED...
saves storage space—cuts handling cost

SUPERIOR HEAT STABILITY...
at high temperatures—better than liquid
commercial enzymes

LONG LIFE...can be kept indefinitely under ordinary storage conditions.

CONTROLLED QUALITY...strict Royce laboratory control guarantees safe, stable, uniform products.

COMPLETE SERVICE...the Royce Technical Service—with years of experience—always available to help solve your desizing problems.

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Write today. We'll send you full information and data sheets on either or both powdered NEOZYMES.

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NEOZYME L and NEOZYME Special

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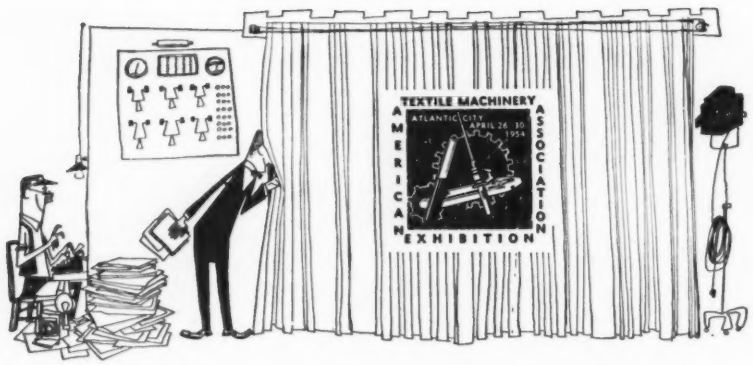
Manufacturers of Chemicals for the Textile Industry



TW has been peeking . . . behind the curtain of the April Textile Exhibition

Here's what we saw that you might be looking forward to:

Tension Compensator

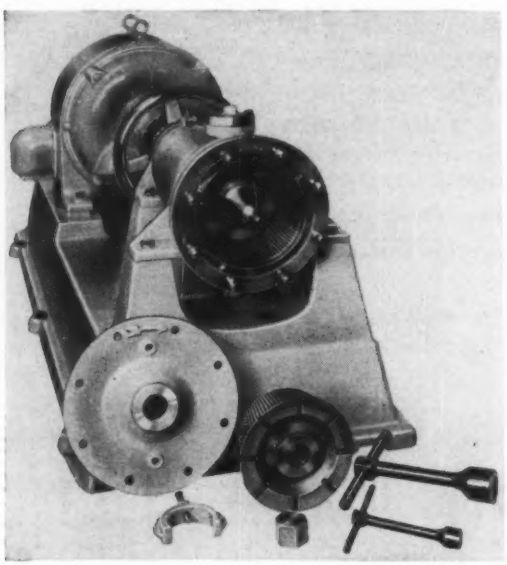
Walter Kidde & Co., Inc., 675 Main St., Belleville 9, N. J., will demonstrate its automatic tension compensator for warpers on synthetic fibers, the Kidde Warp Compensator Model BLT. Broken, loose, or tight ends activate the stop motion on the tension compensator, and the warper is stopped instantaneously.

Accurate tension control of all ends reduces section streaks, insures uniform yardage on all beams, and increases warping speed and efficiency. Tension control is automatic, which relieves the operator of constant surveillance and checking. The compensator will handle tensions from 4 to 20 gms.

Colloid Mill

Chemicolloid Laboratories, Inc., 30 Church St., New York 7, N. Y., will exhibit its Charlotte colloid mill, which is used in processing vat dyes, printing pastes, and many other textile products. The mill is a horizontal, nonaerating type, with external adjustment of the rotor and stator clearance.

It is made in a range of sizes from the 1-hp. laboratory model to a 100-hp. production unit. Capacities range from 50 gals. per hr. on the laboratory model to 5,000 gals. per hr. on the largest production unit. The machine is essentially a high-speed disintegrator and emulsifier in which immiscible liquids, liquids carrying solids in suspension, and paste are finely dispersed, disintegrated, and homogenized.



CHARLOTTE COLLOID MILL will be shown by Chemicolloid Laboratories, Inc.

Rando Feeders and Rando Webbers

Curlator Corp., 501 W. Commercial St., East Rochester, New York, is going to display its Model 40 Rando Feeder and Rando Webber. The Model 40 is a 40-in. machine for producing random (nonoriented) webs from practically any waste or staple fibers by themselves or in combination.

Although the Model 40 will be exhibited, the emphasis will be on the new Models 60 and 84 Rando Feeders and Rando Webbers. Technical information, photos, and samples of materials produced by these machines will be on display. The larger models, 60 ins. and 84 ins. wide, operate on the same principle as the 40-in. machine.

Cloth Guiders

Automatic Web Control Mfg. Co., Box 878, Oklahoma City, Okla., will show a complete line of guiding equipment. The company claims to be able to guide any kind of cloth and to be able to attach one or another of its line of assemblies to any type of machine. With the use of its "cambering roller method," the company claims to be able to guide cloth so accurately at top speed that a legend can be printed on the selvage.

Pilling Tester

United States Testing Co., Hoboken, N. J., will show its pilling tester, which is made with nonpermanent alterations to U. S. Testing's abrasion tester. Basically, the pilling tester consists of a rotary table and a weighted arm, which travel in opposite directions. Research on a wide range of textile materials has provided the basis for determining the degree of pilling that can be expected of a specific blend of fibers.

In addition to its pilling tester, the U. S. Testing Co. will exhibit a new motor-driven twist counter.

Quill-Refinishing Machine

Glenwood Machinery Associates, Inc., 85 Chestnut St., Newark 5, N. J., is planning to display its quill-polishing and -degreasing machine, which is said to actually refinish quills. Mills report that the machine pays for itself in a matter of weeks in labor saving alone.

The machine can be fed directly from a bobbin stripper, and 30 clean quills per minute are delivered to a canvas container. Against a piece of degreasing cloth the bobbins are revolved at 1,200 rpm. With older quills, a piece of sandpaper can be substituted for the cloth to remove nicks from the finish.

Decating Cloths

Aetna Felt Co., 204 Centre St., New York, N. Y., will show a complete new line of decating cloths, which will be of particular interest to finishers of all textile fabrics. The company will also exhibit new developments in woven and pressed felts for use in the textile industry.

Watch this panel each month for more peeks at the equipment to be shown at the American Textile Machinery Exhibition in Atlantic City next April 26-30.

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rubber covered rolls

for every textile finishing operation

S-W INC.

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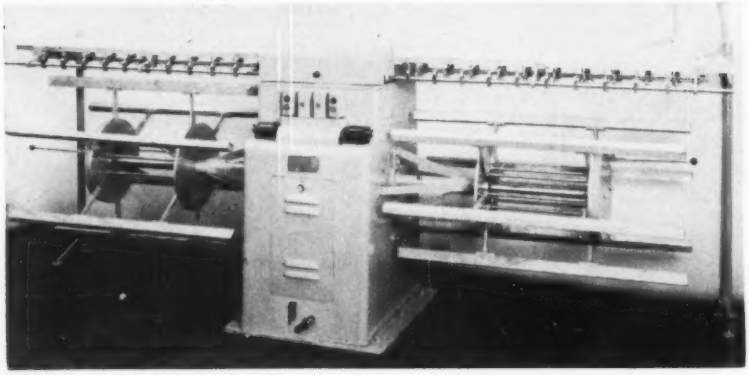
Craftsmen in rubber rolls

NEWTON UPPER FALLS 64, MASSACHUSETTS

Reeler Increases Skein-Reeling Production



SKEIN REELER has separate motors for the two sides and accommodates 72- or 90-in. skeins.

The new reeler developed by Johnson & Bassett, Inc., Worcester, Mass., is said to owe its simplicity and outstanding efficiency to its functional design.

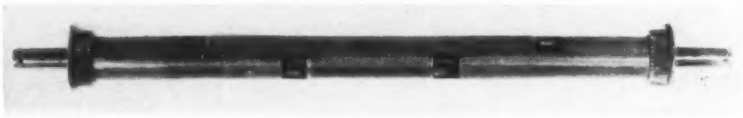
Its full capacity of 28 skeins arranged 14 on each side is under flexible and accurate control because: (1) the two sides are completely independent with separate motors; (2) yardage counters stop the reels with minimum coasting; (3) stop motions are controlled for minimum swift-coasting; (4) selector switch, built in as standard equipment, cuts out stop motions and electric counter as needed; and (5) reel has a variable speed, from 150 to 300 rpm.

Swifts accommodate 72- or 90-in. skeins, which can be changed without changing the arms. Skeins up to 107 ins. can be used if the arms are changed.

Adaptation to other skein sizes can be made by request when the reeler is ordered.

Circle T-4 on Reader-Service Card

New Dry-Box Pole Lasts Longer Than Hardwood



DRY-BOX POLE has a synthetic finish that is not affected by heat or climatic conditions.

A new type of dry-box pole has been made available to the dyeing and finishing industry by Servo-Tek Products Co., Inc., Hawthorne, N. J. This sliding-action pole is constructed in one piece with a ⅛-in. synthetic surface backed by a steel tang. The finish has been given sustained tests at 450° F., and it did not bake out, char, crack, or powder.

By making the center cylinder section of uniform length and varying the length of the end sections, the new poles can be supplied in any desired length.

Countersunk brass screws are used instead of wire binding.

The new poles cost about the same as hardwood poles, and are said to last two to four times as long.

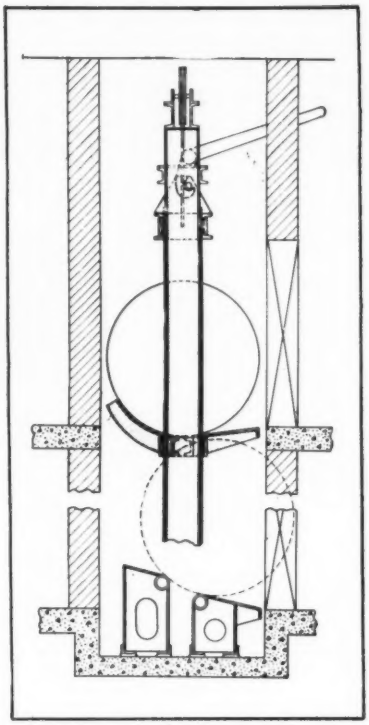
Circle T-5 on Reader-Service Card

Cleaner for Knitting Elements

A cleaner for knitting needles, sinkers, and dividers has been developed by Richmond Oil, Soap & Chemical Co., 1041-43 Frankford Ave., Philadelphia 25, Pa. It is said to be effective for the removal of size. It contains a lubricant, which makes it unnecessary to follow up with needle oil for several sets, and an inhibitor for brass and steel corrosion.

Circle T-6 on Reader-Service Card

Powerless Drop Lowers Beams From Floor to Floor



POWERLESS DROP lowers beams and cloth rolls to a lower floor and automatically discharges the load. The platform returns automatically.

A powerless drop, manufactured by Gifford-Wood Co., Hudson, N. Y., mechanically lowers cylindrical loads from one floor to another and discharges them automatically. Typical loads are cloth rolls, loom beams, and section beams. The powerless drop is installed in a shaftway, and it operates on a simple counterweight principle.

Principle advantages of the powerless drop are: (1) no power is required, (2) a minimum of floor space is required, (3) slowing down and stopping the load is not a problem, and (4) little maintenance is required.

In operation, the load is rolled onto the carriage, the release lever is pulled, and the load descends to the floor below. To cushion the fall, a piston-like counterweight moves up in a cylinder as the carriage moves down.

When the load is discharged, the carriage rises for the next load.

Needle-valve openings can be regulated to control the rate of ascent or descent. The air enters the top or bottom of the cylinder, depending on whether the drop is going down or up.

Circle T-7 on Reader-Service Card

DIVIDEND EARNERS

HARTFORD *PRE-PACKED BALL BEARING* SPINDLES

SPINNING
cuts operating and maintenance costs.

FILLING
requires less attention.

TWISTER
features height adjustment of bobbin seat.

WOOL SPINNING
provides positive drive through spring clutch pads.

● Do away with the expense of oiling. The two grease-retaining ball bearings, which are mounted in rubber, eliminate maintenance for an estimated five years. They also assure smoother running at high speeds, together with better twist and lower power consumption.

You also reduce shutdown time and cut costs with Hartford's exclusive plumbing adjustment. Simply by turning two eccentric sleeves, you bring the spindle into plumb. This can be done while the spindle is running.

ADAPTIONS AVAILABLE

Spindles using brakes can be supplied with hand or knee type, or brakes can be eliminated. All spindles can be had with or without the plumbing adjustment.

WHO IS HARTFORD?

For seventy-eight years this company has been a leading producer of precision products—including components of textile machinery. Over 3,000,000 Hartford-built spindles are in use.

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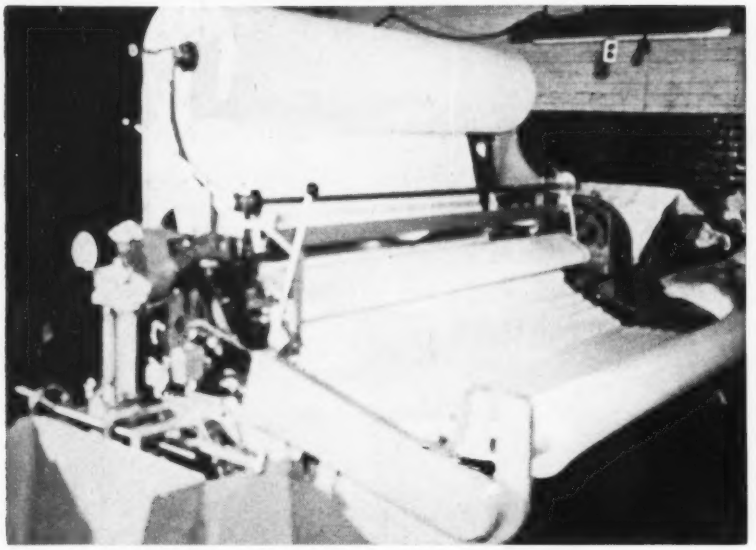
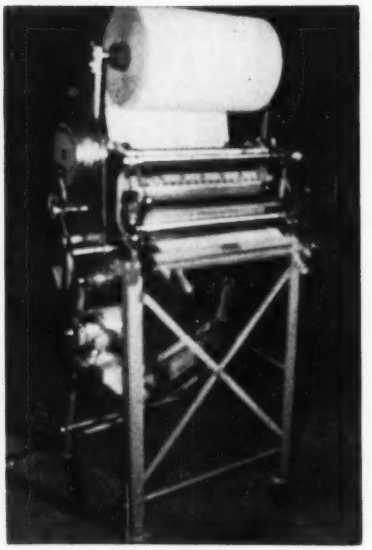
HARTFORD, CONNECTICUT — SOUTHERN DIV. 110 W. McBEE AVE., GREENVILLE

TEXTILE *Equipment* NEWS

Pleating Machines Make Permanent Pleats



PERMANENT PLEATING MACHINE makes washproof pleats on knitted and woven thermoplastic fabrics. Pleats on nonthermoplastic fabrics can also be made.



VERTICAL PLEATING MACHINE has an optional crystal-pleating attachment. Two cutters facilitate pleating.

A permanent-pleating machine has been developed for the production of washproof pleats on knitted and woven materials made of nylon, Terylene, Orlon, and other thermoplastic fibers. It will also make nonset pleats on wool, cotton, silk, rayon, acetate, linen and other fabrics. The Rado 54, made by Karl Rabofsky GmbH., is handled in the U. S. by Robert Reiner, Inc., Gregory Ave., Weehawken, N. J.

The machine has a working width of 59½ ins. and has sliding guides to facilitate the pleating of several narrow strips at the same time. It makes flat, box, and group pleats in an unending variety of designs.

Pleats are produced in 21 different sizes, from 1/16 to ⅞ in. in depth; box pleats from ¼ to 1¾ ins. Spaces up to 1¾ ins. between pleats are automatically controlled, and the machine has a separate mechanism for setting pleat width and depth.

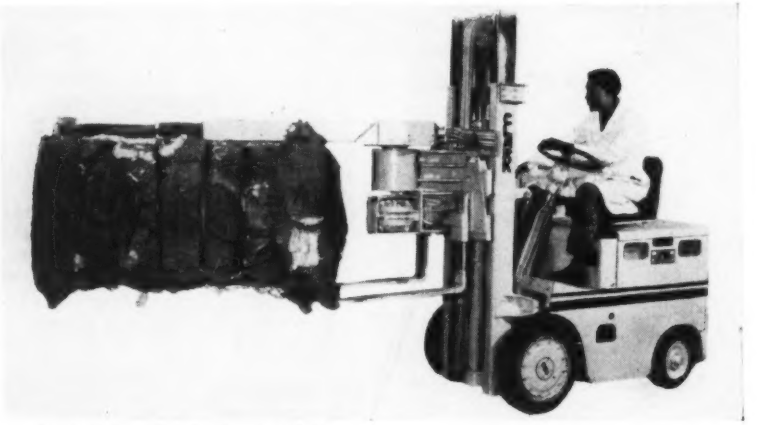
Controls include a temperature-control thermostat, a speed indicator and regulating handwheel, a 24-point pattern wheel and 24-point space-positioning wheel, and an automatic rewinding roll for the pleated fabric.

One operator is required to operate the Rado 54. Production is 20 to 70 yds. per hr., depending on the kind of material and pleat size.

Another pleating machine, The Rado 12, produces small vertical pleats. It pleats in six depths: 1/32, 2/32, 5/64, 3/32, 4/32, and 5/32 in. Two cutters, one with variable tension and one fixed, make it easy to pleat hems and heavy material. It will pleat ruching with unpleated flounces. An optional attachment makes box-crystal pleats.

Circle T-8 on Reader-Service Card

Swinging Clamp Device Works in Narrow Aisles

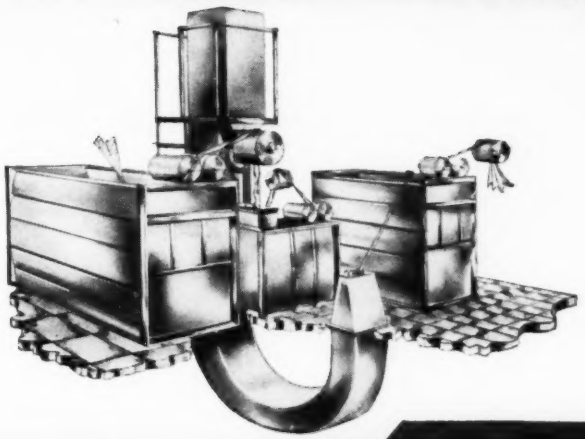


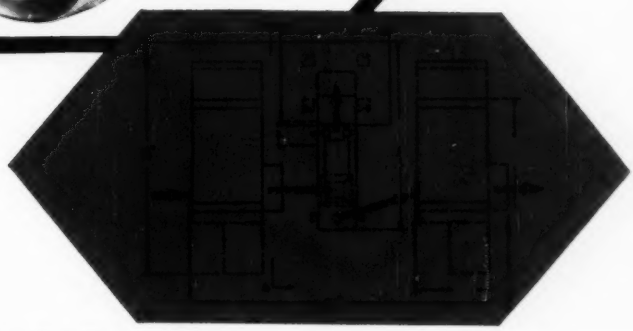
SWINGING CLAMP ATTACHMENT, which can reach out to either side of a narrow aisle to grasp or tier loads behind material already stacked, is now available for fork-lift trucks manufactured by Clark Equipment Co., Industrial Truck Div., Battle Creek, Mich. The maximum capacity of the attachment is 600 lbs., regardless of truck capacity. The clamp device has a full 180° traverse.

Circle T-9 on Reader-Service Card

Quality from the Mill . . .
Profit from the Machine!

The NEW Rodney Hunt Bleaching RANGETTE





New profits for both large and small textile mills are possible with this efficient and economical new unit.

You get big-range efficiency in the small mill . . . normal efficiency in the big mill where there are special-lot problems.

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Light or heavy fabrics can be handled continuously in quantities of 250 to 1500 pounds per hour . . . even more, under most conditions, if full-size units are combined with Rangette units. And at speeds best for efficient, relaxed washing, and coordination with other processes.

All combinations include the famous patented Tensitrol® Washer . . . all are of stainless steel construction throughout.

The layout sketched herewith is only 15 by 21 feet in overall floor area. Many other arrangements can be suggested by Rodney Hunt engineers to adapt the Rangette unit to any available floor area. Write for our NEW catalog on Rodney Hunt Bleaching Ranges and Rangettes.

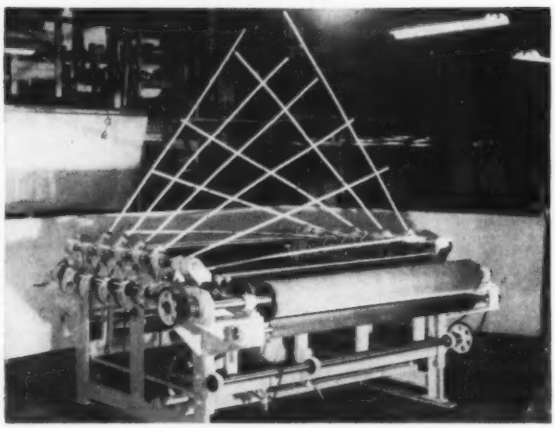
RODNEY HUNT®

Manufacturing Engineers Since 1840

RODNEY HUNT MACHINE CO.
66 MILL STREET, ORANGE, MASSACHUSETTS, U. S. A.

"Rangette" is a Tradename of Rodney Hunt Machine Co.

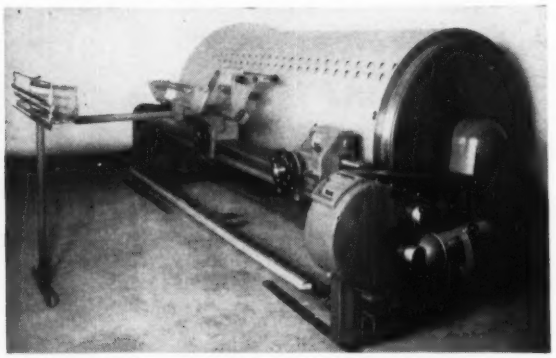
Machine Gives Soft Finish To Pile and Napped Fabrics



BEATING MACHINE for high-pile and high-napped fabrics is produced by Mawaco Machine Co., Inc., 56 Bogart St., Brooklyn, N. Y. It operates at a speed of 2½ to 7 yds. per min., and the intensity can be varied from 2.04 to .51 beats per inch. The fabrics are beaten just before they enter the dryer.

Circle T-10 on Reader-Service Card

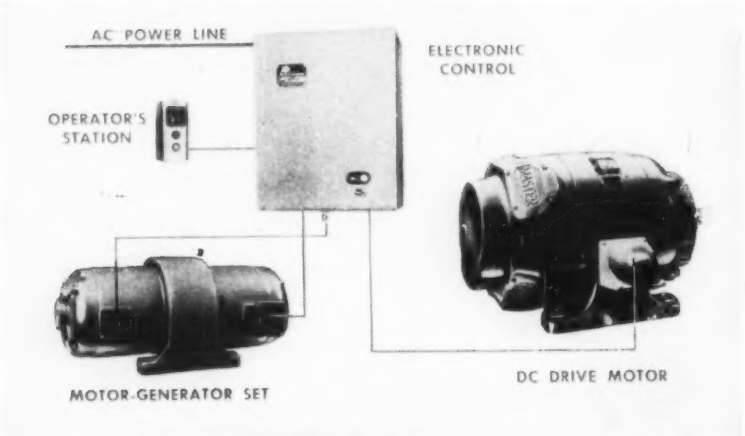
Sectional Warper Has Many Controls



SECTIONAL WARPING MACHINE has a fixed cone that is said to guarantee the uniform length of all threads. The cone is adjusted from a speed gear with 156 possible combinations. Beaming is controlled with an "electrovarispeed" control with a ratio of 6:1. The sectional warper, made by Tessiltecnica, 2 Via del Giglio, Florence, Italy, is said to have these additional features: adjustable tension, constant linear speed, presettable length and revolution counter adaptability to all kinds of warps, drum stops within 90°, reverse motion controlled by pedal, automatic stop motion, and drum speeds to 164 ft. per min.

Circle T-11 on Reader-Service Card

Variable-Speed Drive Has Electronic Control



VARIABLE-SPEED DRIVE with electronic control is available with 2- to 10-hp motors with motor-generator set, ⅛ to 1½ hp. without the motor generator.

A new line of electronically controlled variable-speed drives has been developed by Master Electric Co., 126-92 Davis Ave., Dayton, Ohio. The electronic control permits speed to be responsive to signals based on speed, load, current, voltage, pressure, light, temperature, or time. A.c. power is converted to supply a d.c. variable-speed shunt-wound motor.

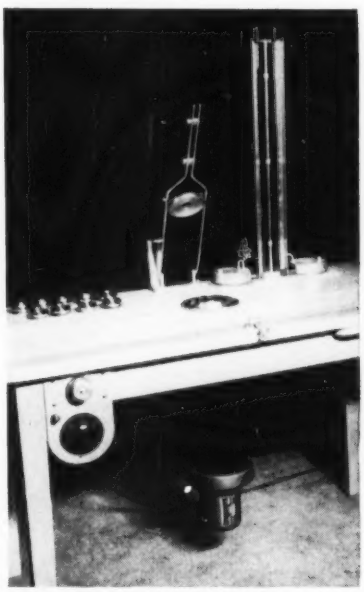
Available in sizes from 2 to 10 hp., the Type GV has basic speeds of 2,400, 1,750 and 1,150 rpm. Drive speeds are adjustable down to one-sixth of basic speed for continuous duty and one-tenth for intermittent duty.

The new line also includes Type EV Speedrangers in sizes from ⅛ to 1½ hp. They are similar to Type GV in operation and performance except that no motor-generator set is used.

Optional features offered with both types are jogging, reversing, dynamic braking, and special-duty cycles.

Circle T-12 on Reader-Service Card

Air-Permeability Tester Tests at 40 Times Standard Pressure



AIR-PERMEABILITY TESTER measures fabrics at pressure differentials up to 20 ins. of water. The new tester, made by Sherman W. Frazier, 953 15th St., S.E., Washington 3, D. C., has nine standard calibrated air orifices. A new fabric clamp is provided to test 1 sq. in. of fabric; tests can be made on large pieces of fabric without cutting. The new manometer is easy to read.

Circle T-13 on Reader-Service Card

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61 Broadway, New York 6, N.Y.

Please send me, without cost or obligation, the Solvay Technical and Engineering Service Bulletins I have checked.

- ☐ No. 4—Calcium Chloride in Refrigeration
- ☐ No. 5—Soda Ash
- ☐ No. 6—Caustic Soda
- ☐ No. 7—Liquid Chlorine
- ☐ No. 8—Alkalies and Chlorine in the Treatment of Municipal and Industrial Water
- ☐ No. 9—Analysis of Alkalies
- ☐ No. 11—Water Analysis
- ☐ No. 12—The Analysis of Liquid Chlorine and Bleach
- ☐ No. 14—Chlorine Bleach Solutions
- ☐ No. 16—Calcium Chloride

NAME_____

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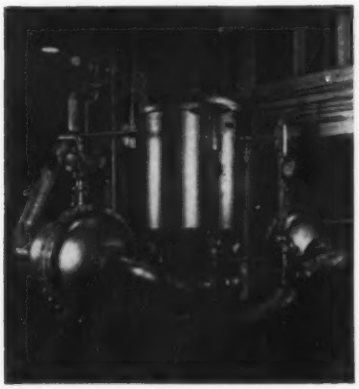
Heat Exchanger Increases Efficiency of Dryer



CLOSED-SYSTEM DRYER recirculates pressurized air to increase the amount of heat without increasing the temperature or exceeding the blower output.

A rapid package dryer has been developed by Carl Gabler GmbH., 8 Theatinstrasse, Munich, Germany. The dryer is fitted with a heat exchanger on the air inlet connected with the intake on the blower. The whole apparatus is under a constant air pressure of 85 to 115 psi-ga., and the thermal energy of the air per unit volume increases almost proportionally with the pressure.

With this system, a larger amount of heat is supplied without exceeding the blower output or raising the temperature. Under high pressures, the volume of air supplied by the blowers is substantially reduced.

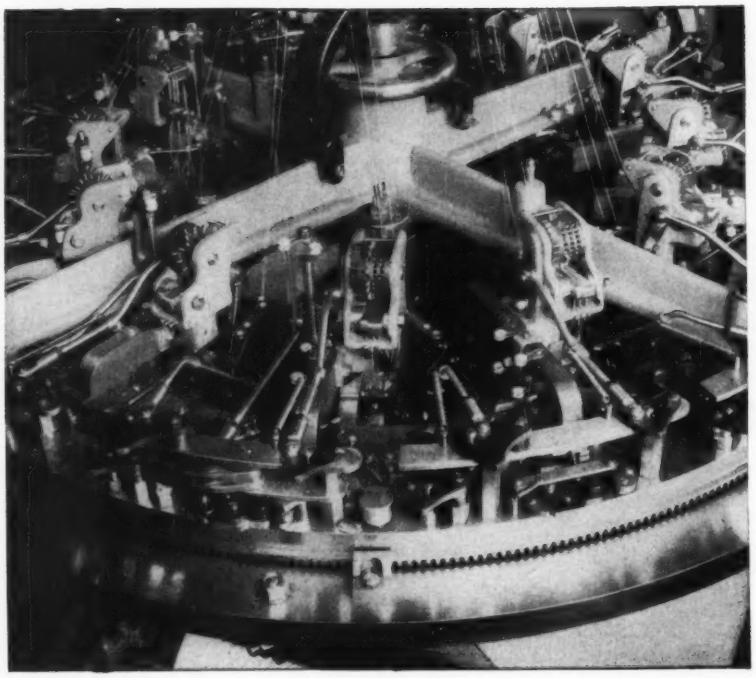
Another advantage of the dryer is that the residual thermal energy of the air is easily recovered after the air passes through the packages. This energy is recovered by a cooling device, which is fitted to the absorption inlet of the blower. The water used in cooling is heated to 60° C. and can be used in the dyehouse, except for the last rinsing water, which is run out. Saturated air at 60° C. is recirculated to the blower.

Since the air is recirculated, no air filter is required. The air is never completely dry; so the yarn cannot be overdried or dehydrated.

Steam consumption is 0.6 to 0.8 lb. per pound of evaporated water if the drying period is 60 to 90 mins. If the usual power consumption of 2.2 to 2.8 lbs. per pound of steam is used, the drying period is 20 to 30 mins. on cotton or synthetic-staple yarn. By regulating the pressure, any drying period can be used.

Circle T-14 on Reader-Service Card

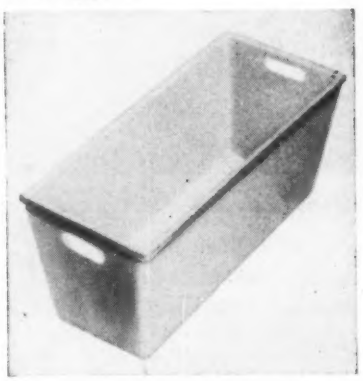
Striper for Circular Machine



NEW STRIPER ATTACHMENT for circular-knitting machines made by Leighton Machine Co., Manchester, N. H., is supplied assembled and it can readily be attached to or detached from each feed. The attachment can be adjusted to give two-, three-, or four-finger striping on each feed.

Circle T-15 on Reader-Service Card

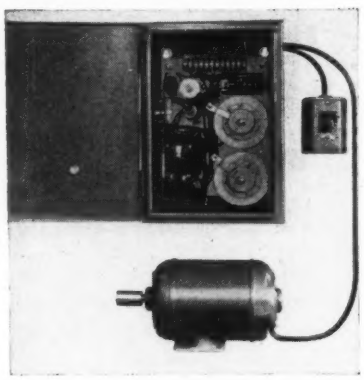
Plastic Quill Box Is Rugged



PLASTIC QUILL BOX has been developed by Gladwin Plastics Co., 275 Houston St., N.E., Atlanta, Ga. Standard box has a 13¾ x 31-in. top, 11¾ x 29-in. bottom and a depth of 13½ ins., but boxes to meet particular requirements can be made. Bright colors make the boxes easily identifiable. The top is reinforced with a steel rod, and the box will not tear, dent, or split.

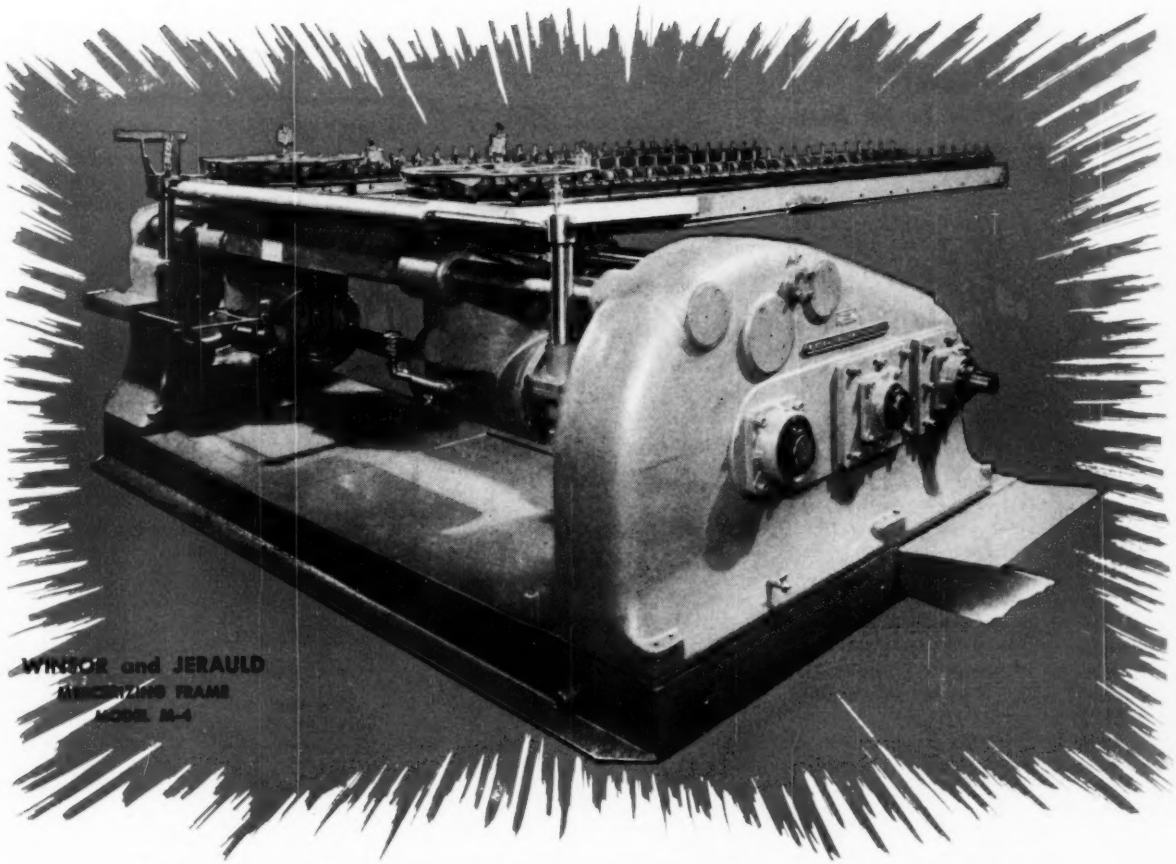
Circle T-16 on Reader-Service Card

Adjustable-Speed Drive Converts A.c. to D.c. Power



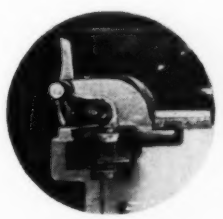
MAGNETIC-AMPLIFIER adjustable-speed motor drive converts a.c. power from a 115-v., 60-cycle source to d.c. power for a d.c. motor. The standard unit provides a speed range of 10:1 for motors from 1/40 to ½ hp. No warm-up period is necessary. Optional features include jogging, dynamic braking, and reversing. Manufacturer: Clark Controller Co., 1146 E. 152nd St., Cleveland 10, Ohio.

Circle T-17 on Reader-Service Card



Another tenter in the Winsor and Jerauld line of custom built, heavy duty tenters is the Winsor and Jerauld Mercerizing Frame — Model M-4.

This machine features a powerful and compactly built main drive which revolutionizes all previous conceptions for mercerizing machinery. The entire drive is built below the cloth line and is completely protected against the possibility of infiltration of the caustic mercerizing solution. The drive motor is connected through a silent chain reduction which appears in the foreground of the above photograph and the entire driving head is mounted on a single reinforced steel bedplate.



The Winsor and Jerauld Mercerizing Clip which is used in conjunction with the M-4 Mercerizer uses a new method of bearing support below the cloth line, a full "eel slip" surface. The "eel slip" also forms a similar surface raceway in which the clip rides and provides an extremely low friction bearing when the mercerizing chain is pulling cloth under tension. The tail surface of the clip is also guided under an "eel slip" retaining casing which itself is reinforced with a steel backing.

Other machinery built by Winsor and Jerauld include tenter frames, tenter clips, padders, "Reflected Light Type" semi-automatic weft straighteners, batchers, rail guiders, as well as complete facilities for repairing tenter clips of all makes.

If we can be of service to you in your cloth finishing problems, please do not hesitate to call on us. There is no obligation. Remember we have been experts in building and servicing cloth finishing machinery for fifty-three years.

Winsor & Jerauld
MANUFACTURING COMPANY, INC.
Main Office
1248 Tidy Street
Southern Division
818 Alondo Avenue

Experts in Cloth Finishing Machinery

TEXTILE *Equipment* NEWS

Spectrophotometer Analyzes Color in 54 Secs.

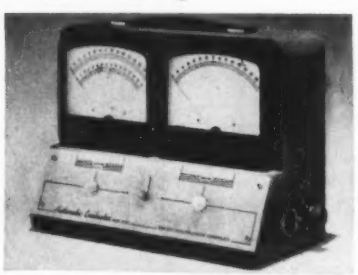
COLOR ANALYSIS on satin cloth is being done by this recording spectrophotometer. A didymium curve is drawn in 54 secs.

A redesigned recording spectrophotometer for setting standards to control the color of dyes and fabrics has been announced by General Electric Co., Special Products Section, Schenectady 5, N. Y.

The instrument furnishes rapid color analysis by drawing a complete didymium curve in 54 secs. with photometric accuracy of 0.5% wavelength accuracy within 1.0 millimicron, and photometric precision within 0.2%. It has been simplified so that a semiskilled person can operate the equipment with little instruction. Routine operation is largely automatic. Power requirement is 400 w. at 115 v.

Circle T-18 on Reader-Service Card

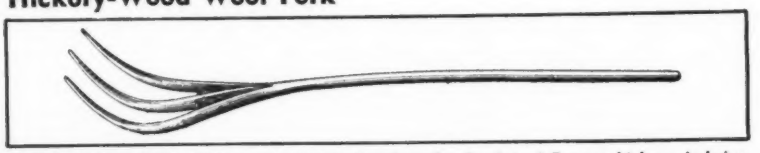
Attachment for Yarn Analyzer Gives a Direct Reading



THIS AUTOMATIC EVALUATOR gives a direct reading with the uniformity analyzer made by Brush Electronics Co., 3405 Perkins Ave., Cleveland 14, Ohio. The automatic evaluator gives complete nonuniformity data from a 1,000-ft. sample of yarn in 3½ mins. It is applicable to all new and modified analyzer units.

Circle T-19 on Reader-Service Card

Hickory-Wood Wool Fork



A ONE-PIECE WOOL FORK, newly designed and made of selected Eastern hickory, is being manufactured by Torrey Bros. Co., Wood Specialties, Central Village, Conn. Advantages are said to be reduced fire hazard, less friction, and virtual elimination of static.

Circle T-20 on Reader Service Card

Textile Equipment News

(Continued on page 206)

NEW *Dyes* AND *Chemicals*

New Stripping Agent Is Cheaper, Effective

Protolin SX is a new, low-cost sulfoxylate stripping agent recommended by Rohm & Haas Co., Philadelphia, Pa., for efficient, economical stripping of colors from wool, acetate, and nylon and for the discharge printing of acetate fabrics. It is recommended as a replacement for Protolin in these applications. While approximately 1½ times as much Protolin SX as Protolin is sometimes necessary, the low price of this product makes it possible to produce equivalent color removal at a considerable saving in cost, the makers claim.

The product is supplied as a light, free-flowing powder with good storage stability and is readily water soluble.

Circle D-1 on Reader-Service Card

New Direct Yellow Good For Cross Dyeing Acetate

The latest addition to a line of non-dusting direct dyes made by National Aniline Div., Allied Chemical & Dye Corp., New York, N. Y., Solantine Yellow 2RLL, possesses very good solubility and very good resistance to metals. It produces medium-yellow shades on cotton or rayon, stains silk, wool, and nylon, but leaves acetate rayon practically unstained. This dye is said to possess very good to excellent fastness to perspiration, alkalis, water, sea water, crocking, and hot pressing, and good fastness to light. Materials dyed with the product may be resin finished for crease resistance with practically no alteration of shade or lightfastness.

Circle D-2 on Reader-Service Card

Wool Orange Reserves Cotton, Acetate

National Fast Wool Orange FF, a level-dyeing acid dye, produces well-penetrated shades of bright orange on wool. It reserves cotton, viscose, and acetate fibers practically white but stains pure silk and dyes nylon slightly yellower than wool. The product is said to possess good fastness to light. Woolen piece goods or felt can be carbonized after dyeing, as this dye has excellent fastness to either sulfuric acid or aluminum chloride carbonizing.

Circle D-3 on Reader-Service Card

Two New Latyl Dyes For Dacron

Two new dyes, Latyl Yellow YL and Violet 2R, for the dyeing of Dacron have been announced by E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Letyl Yellow YL gives bright, greenish-yellow shades of good fastness to light, washing, and sublimation. The new dye is particularly recommended for use in light to medium shades and as a shading component for tans and light browns. Yellow YL is level dyeing and has satisfactory build-up to 2%. It can be applied at the boil with a carrier, by the Thermosol process, or under pressure without a carrier.

Latyl Yellow YL also has good light, washing, and sublimation fastness on other hydrophobic fibers. The color is being used successfully in dyeing pale shades on Type 42 Orlon, where it dyes levelly, transfers well, and shows very good fastness to light, washing, and perspiration. On nylon, it has good wetfastness properties but poor lightfastness. Unions of 50-50 Dacron and wool are dyed almost to equal depth.

True violet shades of good brightness can be produced on Dacron with Latyl Violet 2R. The dye has good affinity, dyes levelly, penetrates well, and has adequate build-up for full shades when applied to Dacron from benzoic acid or orthophenylphenol dyebaths.

Violet 2R works well in combinations but is not suitable as the base red or blue component in browns and blues where its red shade change under artificial lights would be objectionable.

The dye yields bright red-violet shades on acetate that cannot be obtained with acetate dyes. Color build-up is not quite as good on acetate as on Dacron, but it is satisfactory for light to medium shades. Unions composed of equal parts of Dacron and wool show that Latyl Violet 2R stains wool but not to an extent that would affect wool fastness requirements.

Circle D-4 on Reader-Service Card

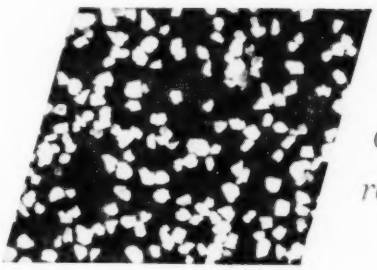
THIS IS NO. 102 OF A SERIES

NOW !

GENERAL CHEMICAL

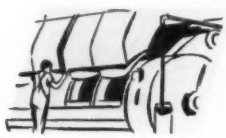
ANHYDROUS SODIUM METASILICATE

Na_2SiO_3

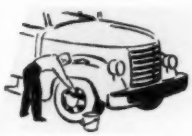


. . . another addition to General Chemical's wide range of Sodium Compounds

Uses: Bottle-washing plants



Laundries



Garages

Bakeries

Metal Cleaners

Heavy Duty mechanical dish-washers

Cleaning industrial equipment

In the textile industry

Water treatment to prevent corrosion

General Chemical's hydrated Sodium Metasilicate has long been recognized in the field of heavy duty detergents as a quality product, particularly suited to applications requiring an alkaline detergent which is extremely effective without being unduly corrosive.

General's new Anhydrous Metasilicate, like the hydrated product, is of exceptionally high quality. Behind it stands all of the experience the company has gained in half a century as a leading producer of Sodium Compounds.

It is produced as a free-flowing, white, granular material; screen size—all through 10 mesh, 1% maximum through 100 mesh. It is packed in 100 and 400 pound drums, and 100 pound bags.

For your requirements, consult the nearest General Chemical office listed below.

Basic Chemicals for American Industry

Allied Chemical

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

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THIS IS NO. 102 OF A SERIES

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation.

CHECKING DELIVERY POINT OF THREAD GUIDES ON THE NO. 50 WINDING MACHINE

A button thread guide should contact the surface of the winding package properly to get the best winding results. If the face of the guide does not contact the package surface squarely, but is twisted slightly to one side or the other, one end of the package will be soft. The guide should contact the package at the delivery point, which is the point where the yarn leaves the thread guide slot; control over the yarn lay will be lost if the guide contacts the package above or below this point. It is a good idea to check the guides occasionally to see that the delivery point is in correct relationship to the surface of the package. This is a simple job, involving only the use of a piece of carbon paper and possibly a pair of pliers.

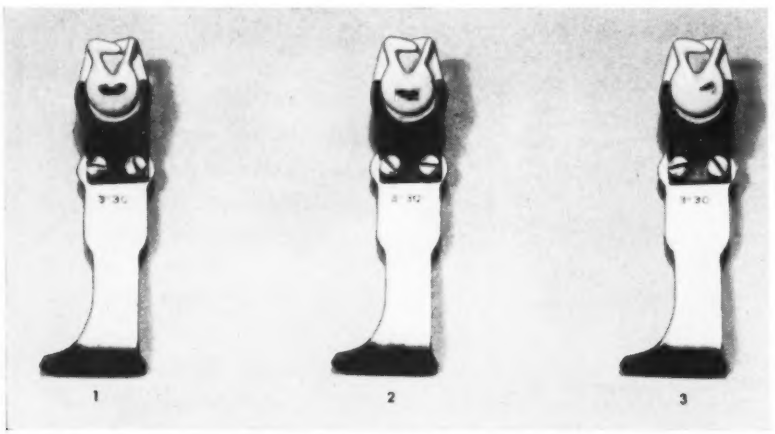
Place the carbon paper, carbon side out, between the empty cone and the thread guide (the traverse frame stop will have to be moved out of the way to do this). Press the guide against the paper and draw the paper straight up. Then:

1. If the guide is adjusted correctly, there will be a carbon smudge at the bottom of the V-shaped slot in the guide, and the smudge will be centered below the point of the "V".

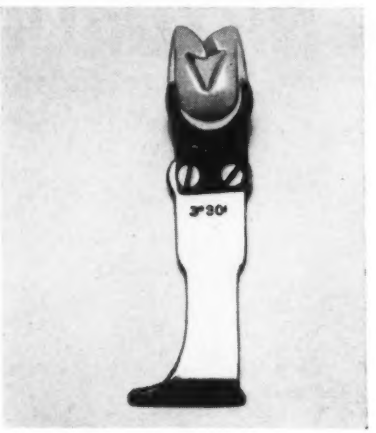
2. If the slot cuts into the smudge, the thread guide holder should be bent backward with the pliers.

3. If the bottom of the "V" does not touch the carbon smudge, the holder should be bent forward slightly.

4. If the smudge is located one side or the other of the slot, the guide is off center, and the holder should be twisted until the carbon paper smudges uniformly across the face of the guide.



1. Uniform carbon smudge at bottom of V-shaped guide is correctly set.
2. Smudge is below "V". Guide holder should be bent forward.
3. Smudge is on right-hand side. Guide holder should be bent counterclockwise.



New AlSiMag guide in standard holder for 3°30′ coning.

Guides should be checked for wear, too. When handling fine denier yarn, it is especially important to retain the high finish on ceramic guides. Certain of the chemical fibers being processed today will cause some guides to wear rapidly. When this happens, there is always the danger of filaments being damaged. Or if the yarn cuts into the guide itself, it may cause a stitching condition on the package.

A new button guide with a "sister-hook" feature, #73-167-49, in AlSiMag*, now available for use on the No. 50 winding machine, has very high wear-resistant qualities. This guide is easily threaded, yet it is designed to prevent the yarn from jumping out of the groove. A similar AlSiMag guide capable of dissipating static charges is also available.

January 1954 — 23.3.5

*Trade Mark of the American Lava Corporation

WINDING AND TWISTING MACHINERY FOR NATURAL AND SYNTHETIC YARNS

UNIVERSAL WINDING COMPANY

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LETTERS FROM OUR READERS

Address all communications to:
Editor, *Round Table*, TEXTILE WORLD
330 West 42nd Street, New York 36, N. Y.

Round Table

A BRITON DEFENDS HIS INDUSTRY

Dear Editor:

A letter from a Brazilian gentleman was published in the October issue of TEXTILE WORLD. I feel that some comment is called for in fairness to the textile industry of this country (Great Britain).

Your Brazilian correspondent was puzzled by the following figures, which were given in a table entitled "World Position of Textiles in 1952," published in the March issue of TW.

Cotton yarn	United States	Great Britain
Spindles (million)	23.0	34.0
Production (million lbs.)	4,479.0	663.0

As I felt that the above figures gave a misleading impression, I referred to the British Cotton Board, who have kindly supplied the following statistics:

	1951	1952	First 40 weeks 1953
Cotton, spun rayon, and mixture yarns (excluding waste yarns), million pounds	967	682	616
Spindles installed, million mule eq.	34.10	33.97	33.65
Spindles installed, million ring eq.	22.73	22.64	22.44
Avg. spindles running — million mule eq.	27.83	21.10	23.19
— million ring eq.	18.56	14.07	15.45
Avg. production per running ring eq. spindle, pounds	52.1	48.5	39.9*
Avg. weekly hours worked by running spindles	42.6	38.5	41.9

*N B. 40 weeks only.

The first two items in the column for 1952 show that the Cotton Board have substantially confirmed the figures quoted in your journal, but the 34-million spindles quoted for Great Britain were, in fact, "mule equivalent." As this has long been a mule-spinning country and as approximately two-thirds of our spindleage is still represented by mule spindles, it is our custom to express total spindles as mule equivalents, on the assumption that one ring spindle is eqivalent to 1.5 mule spindles.

The total spindleage installed in this country in 1952 was the equivalent of 22.64-million ring spindles; and as the 23-million spindles quoted by you for the United States in 1952 were all ring spindles, the corresponding figure for Great Britain should be the 22.64-million.

In 1952, which was a year of recession in the British textile industry, the average spindles actually running, i.e. the spindles which produced 682-million lbs. of yarn, amounted to no more than 14.07-million ring equivalents.

The figures quoted in the March issue of TEXTILE WORLD indicate an average production per spindle of approximately 194 lbs. in the United States as compared with only 19.5 lbs. in Great Britain. The production in Great Britain in 1952 was, in fact, 48.5 lbs. per spindle.

Account must be taken of (1) the difference in hours worked in the two countries, and (2) the difference in average numbers spun. We have a single-shift system, whereas you work two and three shifts. The table supplied by the British Cotton Board states that the average weekly hours worked by running spindles here in 1952 was only 38.5. The gap between the productive potentials of the machinery in the two countries is thus further narrowed. The average numbers spun in Lancashire are finer than those spun in the U.S.A.; so there can be little difference between the efficiency of American and British spinning machinery.

In conclusion, please permit me to assure you that I have no wish to dispute your statements regarding the remarkable efficiency of the American textile industry. My purpose in writing to you is merely to give a more complete, and consequently a more accurate, picture of the textile industry of this country.

W. G. BYERLEY
Director
T.M.M. (Research) Limited
Rossendale, England

TEXTILE TICKLES . . . . . *By Edgar Allen, Jr.*

"How do we handle this?—Here's a fellow who's just submitted a Kink for his Kink!"

Round Table (Continued)

A KINK READER COMMENTS

Dear Editor:

I was surprised to read the Kink in TW, Oct. '53, p. 166, submitted by a gentleman in India. It seems to be an awfully expensive way to avoid a minor trouble. [The Indian firm replaced all replaceable loom parts with stainless steel and nickel plated other parts. Editor]

Granted, stainless steel and nickel-plated parts are desirable in any humidified weave shed, but wouldn't it be easier—and more conducive to consistent good-quality bleaching for the mill to use sequestering agents?

It seems to me TEXTILE WORLD has run several articles on bleaching, sequestering agents, and on peroxide in recent issues.

A READER

[Perhaps our anonymous correspondent refers to these articles in TW: Oct. '52, p. 102; Nov. '53, p. 156; and May '52, p. 131.—Editor]

KEEPING EMPLOYEES

Dear Editor:

One of the most difficult types of workers to satisfy follows this pattern in his thinking. Immediately after leaving school, he finds employment in the mill. Naturally he soon learns that conditions are not ideal there, for the simple reason that no job open to the average young worker ever is perfect.

Not having any previous background to use for comparison, the young worker believes other positions certainly must be preferable. So he very likely soon leaves the mill—quite likely for another mill or other employment no more desirable. Or if conditions force him to stay in your mill, his personal discontent remains as a constant threat to employee relations.

Handling this type of employee can be simplified by an easy method of grouping workers.

Some time early in the mill career of the just-out-of-school employee, team him with one or more experienced men whose records show they have worked at other mills or in different occupations. These arrangements need not be permanent, of course. But such older men frequently will discuss the disadvantages of other jobs they have tried, and thus will give the younger man some much-needed background information.

Even when these older workers speak well of their former employment, there is always the fact that their final choice has been here in this mill. It will not take long for the impression to fix itself in the young employee's mind that working in this mill must not be such a bad job after all.

Harrisburg, Pa. GEORGE M. DODSON

Questions AND Answers

These Tips Prevent Cross-Weave Marks in Terry Cloth

Technical Editor:

What causes cross-weave marks in terry cloths and how do we get rid of them? (9715)

Cross-weave marks in terry cloths are generally caused by breakage of the filling yarn during weaving. Even experienced weavers have difficulty in trying to make a perfect restart after a filling break.

To make a perfect restart without a cross-weave mark, the weaver should proceed as follows:

1. Remove from the fell of the cloth all picks of the uncompleted 3-pick terry-weave cycle.

2. Release or let back the correct number of teeth in the take-up gears to return the fell of the cloth to the line of beat-up by the reed.

3. Pull the ground warp back to the correct tension. Let back a few extra teeth on the take-up gears before pulling the ground warp back. A forward movement of the take-up gears will enable the correct tension of the ground warp to be obtained.

4. Pull back the pile warp to correct tension. Take care not to overpull, or the next terry loop left in the cloth will be dragged out.

5. Insert a pick and check that it is in the correct lift for the first pick of the 3-pick terry-weave cycle. If it is not the correct lift, the pick must be removed. Pull back the pile warp if the let-off gears of the pile warp have been operated while the correct pick is found.

6. Leave in the correct pick and make the second pick. Check the distance from the fell of the cloth to the first pick that was inserted. The distance must be equal to that usually left by the action of the reed and the terry motion for the type of terry cloth being woven.

If the distance is too large, a high terry will result. This condition indicates that the pick gears were not released sufficiently and/or the ground warp not pulled back enough. Take up two or three pick-gear teeth by hand if the space is too small.

The loom can now be started, and a perfect row of terry loops should be formed.

These perfect restarts are not easy, and the real solution is in preventing filling breaks. These points should be checked by an experienced man as follows:

1. Remove all fuzz from the reed pocket and check the alignment of the reed and lay with the shuttle boxes.

2. Check overcrowding of the selvage threads in the reed because they act as scissors on the filling.

3. Check the temples and cutting blades for cutting the filling at each passage of the shuttle.

4. Check the shuttles and shuttle tensions.

5. Check all empty filling bobbins for split ends and crooked barrels. Scrap all faulty bobbins.

6. Use good-quality filling yarns and the best of shuttles.

7. If you are using rewound filling, check on filling-winder practice and for incorrectly sized bunches.

Ridges of terry can be caused by the loomfixer's setting the terry motion to open the reed too much. The let-off gears of the pile warp pull back the oversized terry loops and cause cross-weave marks.

Cross-weave marks can also be caused by mislifts of the heddles in dobby looms and jerky let-off of the ground warp.

Sweater-Washing Procedure Depends Upon Many Factors

Technical Editor:

We are being asked to wash full-fashioned woolen-sweater pieces to improve their appearance and hand. Can you give us information on equipment, time, temperature, liquor ratio, etc.? (9717)

There are specially designed washing machines to give knitted garments a soft hand. However, each piece of cloth from the knitting machine may have to be treated in a different manner.

The tightness of the stitch, the quality of the wool, and other factors determine the washing procedure. It is customary to send a sample through the washing plant before knitting a new run of garments.

Sweater pieces of 56-58s wool are usually washed in cold soft water as it comes from the main. Softeners are used if the water is hard.

The time of washing and the liquor

ratio must be watched to prevent matting. The greater the liquor ratio, the longer the washing period.

Scouring is only necessary if the yarn has an excess deposit of oils, and warm water only is recommended. Ceranine softening compound is often used for filling.

Use Two or More Shuttles To Reduce Filling Bars

Technical Editor:

An 87½% wool and 12½% Dynel single-shuttle-loom cloth made in Marine Corps Green consists of a single warp and single filling. The cloth has filling bars, some of which are ¼ in. wide and some 1 in. wide. Some of the bars extend across the cloth, and others disappear into the fabric. What causes these filling bars? (9714)

Filling bars may be caused by yarn of uneven size, uneven blends, twist, or color. As the cloth is woven on a single-shuttle loom, any slight variation in the filling yarn causes bars. When two or more shuttles are used there is less chance of unevenness in the filling showing as bars.

Bars may also be caused by faulty loom motions. Let-off or take-up motions out of repair or adjustment and loose crank arms may cause imperfections that look like filling bars.

Analyze the bar in the fabric by counting the picks in the bar area to determine if the let-off or take-up is the offender. Tear the cloth at the filling bar, and take out the filling and test it for size, twist, color, and blend percentage. This will give some idea as to the cause, and then it is a matter of checking back to find the offending operation.

Humidity Is Best Control For Static in Carding

Technical Editor:

We are interested in the elimination of static during cotton carding by these three methods: (1) humidification alone, (2) static eliminators alone, and (3) eliminators and humidity combined. Will humidification give better results than static eliminators, and what benefits can be obtained by using both methods? (9710)

In one card room, static eliminators were installed on one section of cards without humidification and were fairly effective in neutralizing static. However, the sliver delivered to the drawing frames did not process as well as sliver conditioned by humidity. Drafting on draw frames and slubbers was more uniform with humidity, and fly was reduced on the conditioned stock.

One advantage found in the use of the eliminators was that they acted very quickly in killing static in starting up on cold, dry mornings. This dry starting-up condition is avoided in many mills by running the humidifiers several hours before starting time.

A well-engineered and installed humidity system with sufficient reserve capacity to more than take care of extreme climatic conditions will give the best results in cotton-yarn manufacture.

Spinning-Frame Cycle Cleaning System Is Success

Technical Editor:

Reading through "Georgia TOE Surveys 16 Spinning Subjects" [TW, July, '53, p. 104], I noticed no reference to the cycle system of cleaning spinning frames. Is this system being used? ((9713)

The cycle system of spinning-frame cleaning is being used with great success in some mills. Much of the cleaning usually done by the spinner is now done by a cleaning crew. These cleaners pick top rolls, clean steel rolls, brush ring rails, and clean pencil rolls.

The spinner picks top clearers, runs out guides, brushes rails and rockers once each shift, and cleans the lap sticks when necessary after a doff. She is able to look after more sides than under the old system and patrols her set only every 20 mins., piecing up and creeling. The spinner's walking is cut down as she does not backtrack or work back through her set.

Workloads are equalized. As each set contains the same amount of work, pay rates for all spinners are based on the same figure. This system has increased spinners' pay about 5¢ per hour.

Package Dyeing Gradually Replacing Skein Dyeing

Technical Editor:

What are the most recent developments in winding woolen and worsted yarns for dyeing? (9716)

Although skein dyeing is still used for zephyr knitting yarns and where a lofty and soft hand is required, most mills have or are swinging to package dyeing.

Uniformity in winding is stressed more than tension. A medium and uniform yarn tension in winding gives the best results for even dyeing. A fairly firm but uniform wind is desired. Package-to-package uniformity in wind and tension is stressed. The wind considered best has one yarn traverse equal to the circumference of the package.

Larger tube diameters are being used. Tubes of 1⅝-in. dia. make for more-even dyeing and do not compress the yarn so much as smaller tubes. The weight of a package should be about 20 oz. and the diameter about 5¼ ins.

A new type of compressible dye-machine spring, from England, allows up to 25% more yarn capacity in the dyeing machine.

A new machine allows one operator to transfer 3,000 lbs. of yarn from paper tubes to dye-machine springs in 8 hrs. The yarn can be placed on a shipping tube again without winding. The yarn is wound onto 1⅝-in.-dia. paper tubes covered with a knitted sock. The package is placed on the machine and a spring inserted as the tube is punched out.

Mothproofing of Wool Is Done in the Dyebath

Technical Editor:

We find cuts in our cone-wound worsted yarn that appear to have been made by some moth or insect. The cuts sometimes go 1 in. deep, but we find no trace of moths. What insect would do this and how can we prevent this condition. (9723)

Carpet beetles do this damage to untreated wool. They even attack the yarn from the inside of perforated cones so that no damage can be seen on the outside of the cone.

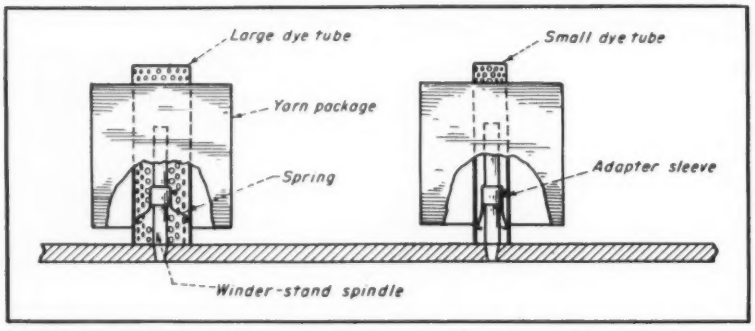
The best remedy is to treat the yarn with a mothproofing agent that can be applied in the dyebath during dyeing. No extra operations are involved, and there is no change in the other properties of the treated yarn. Dyestuff makers usually supply mothproofing agents.

Any stock of goods that has not been mothproofed can be successfully treated with paradichlorobenzine, which is tossed into each package or container. Since this chemical evaporates and gives no further protection, it must be renewed every two months.

A treatment with DDT provides excellent protection against insect damage for several years.

Kinks AND SHORT-CUTS

Winding Adapter Handles Large and Small Dye Tubes



SPRING ON ADAPTER holds large dye tube on the left package holder as firmly as the small dye tube on the right during winding.

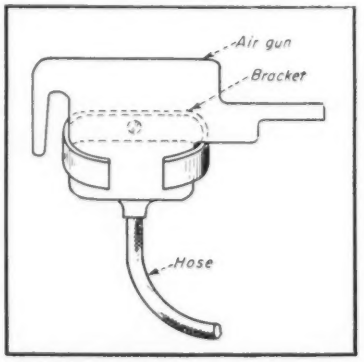
We use many different yarns that reach us on dye tubes of all sizes. We had difficulty in fitting these securely on our winding-machine stand for cone winding. As the package decreased in size during winding, its weight became insufficient to keep it from jumping up to the waxing attachment. The machine would stop, and yarn would often break.

We overcame the difficulty by using an adapter made from a steel sleeve that fits snugly over the package holder. Three flat wire springs screwed 120° apart on the sleeve keep the package in position. A screw through the sleeve locks the sleeve on the package holder. It can be locked in any desired position. *Dan Signer, Newton, Mass.*

Air-Hose Bracket Tidies Up the Room

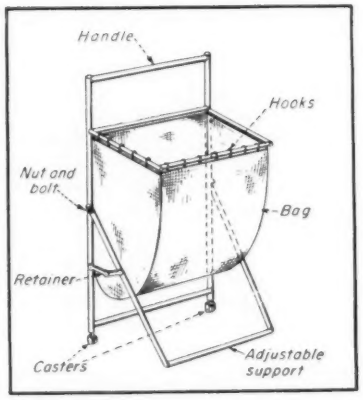
Air hoses are now standard equipment in most mills, but after they have been used they are frequently left lying around to be walked on. Hose on the floor is also a safety hazard.

To remove the hose from the floor, screw a bracket to a wall or a post nearby. The bracket can be made from a strip of mild steel 8x1x⅛ in. The bracket is bent to receive the nozzle and fastened up with screws through holes drilled in it before bending. *Leon Gepner, New York, N. Y.*



AIR-HOSE BRACKET keeps air gun and hose off the floor and reduces the danger of accidents.

These Containers Separate Wool and Cotton Waste



WASTE CONTAINER is made from ¾-in. pipe. Hooks on the top rail allow the shipping bags to be hung for easy filling, and casters make for easy handling.

We knit wool and cotton yarns and had trouble keeping the valuable wool waste out of the cotton waste. We used one box for wool waste and one box for cotton waste.

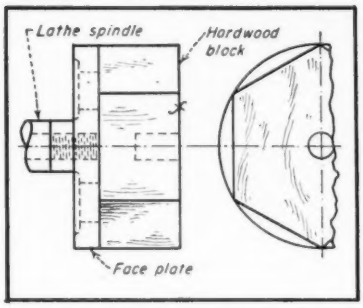
We now get little trouble because we made a special frame to hold our waste bags. The frame is made of welded pipe; and the waste bags, which are also the shipping bags, hang on hooks suspended to the upper frame.

We hang a sign denoting the type of waste on the upper frame to prevent mistakes. Two casters on the bottom of the frame allow easy removal to the shipping room, where the bags are unhooked and weighed.

A hinged bar allows the frame to stand in any part of the knitting room.

Now we save much time in sorting, transporting, and rebagging waste. *Dan Singer, Newton, Mass.*

Our Tough Drilling Jobs Are Done on a Lathe



HARDWOOD BLOCK on the tailstock ram supports work on a lathe for jobs difficult to drill squarely on a drill press.

I frequently get machine levers to drill that do not lie flat on the drill-press bed. An accurate drilling job was difficult on levers where the faces did not align with the face of the hub. So I made a hardwood block to hold the part to be drilled and did it on a lathe.

I fastened a block large enough to accommodate the bosses to be drilled to the lathe face plate. I faced the block and drilled and bored a hole 1 in. deep to fit the outside of the tailstock ram. The block is transferred to the ram and used as a base for right-angled drilling. *Walter A. Simond, Essex Junction, Vt.*

How To Clean Conveyor Belts

Here's how you can keep your conveyor belts clean without adding an extra motor to your power bill.

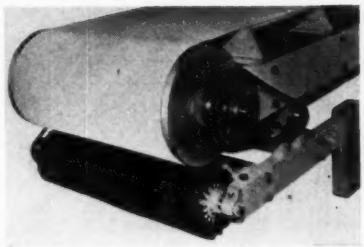
Drive a brush from the belt itself, as shown in the picture.

All you have to do is put a sprocket on the end of the head conveyor pulley, install a counter shaft across the conveyor supports, and mount the brush on a counterweighted arm.

The power comes from the pulley sprocket, through a chain to the counter shaft, and from the other end of the counter shaft through another pair of sprockets and a chain to the brush itself.

Surface speed of the brush should be at least four times that of the belt. Adjustments are made by varying the sizes of all four sprockets.

Pressure of the brush against the belt is, of course, governed by the position of the counterweights on each side.



BRUSH is driven from the conveyor belt itself, through a counter shaft, at a surface speed four times that of the belt.

The brush face should be 2 ins. wider than the belt for best results. *Fuller Brush Co., Hartford, Conn.*

We Use Paraffin Wax To Find an Area Causing Overheating

Overheating of generators, compressors, and other equipment used to cause us a lot of worries because it was so hard to find the source of the trouble.

That trouble is all behind us now because we have found a new sure way to put our fingers right on the spot causing the overheating. We let the machine cool off, and then we paint the whole area that's overheating with melted paraffin wax and let it cool. Next, we restart the machine and watch for the first spot of melted wax. The local point that heats first melts the wax and is the trouble spot.

It is then a simple matter to tear into the machine and correct the trouble. *W. E. Warner, Essex, England.*

$500 for Best Kink in 1954

$25 for Best Kink in Each Month

In Addition to Space Payment on Acceptance

You undoubtedly know many Kinks and Short-Cuts that are helpful to mill operators. Write them down and send them in. We pay promptly on acceptance—before publication. In addition, your Kink may win the $500 check for the best Kink of the year or the $25 check for the best Kink of the month; maybe both!

Send in your Kink now. There is always a contest going on. The more good Kinks you send in, the better your chances of winning a prize in addition to earning some easy money for every Kink accepted.

We will polish up your writing and will have an artist make finished drawings. But send in plenty of details so that your Kink can be clearly explained. Be sure your sketch is clear and well labeled, but it need not be a polished job. Best of all, send us a good glossy photograph of it; we will pay you extra if you do and we can use it.

Look over the Kinks in this and other issues. You will get ideas you can use as well as inspiration for Kinks you can send in. We like items that pertain to ways for improving machines, new devices that a mill man can build, attachments or methods of merit—anything that will cut costs, improve quality, or help production.

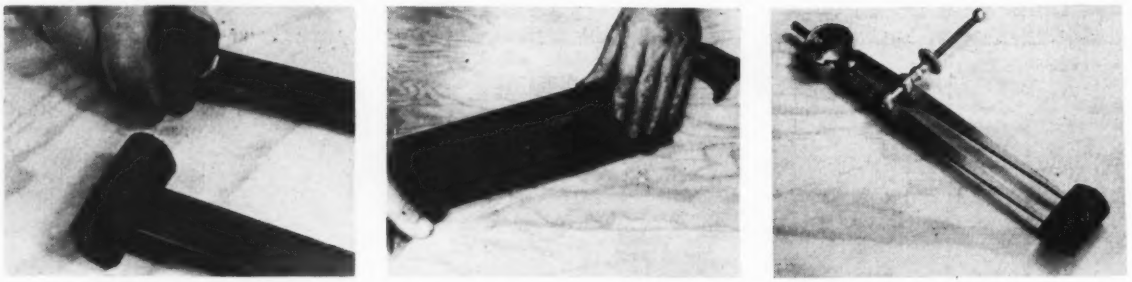
Your published Kink will be judged impartially by other mill men. In cases of ties, duplicate prizes will be awarded.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1954.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 200 will be asked to select preferred Kinks in each issue. Their votes will select the best Kink, and their decision will be final.

Send Kinks to:
KINKS CONTEST, TEXTILE WORLD
201 E. Coffee St., Greenville, S. C.

Protect Tool Edges With Rubber-Hose Sections



JUST THREE WAYS to use rubber-hose sections are illustrated here. Cut a hole for a chisel, slit the hose for a saw, and punch dividers through.

Sharp-edged and pointed tools can cause serious cuts if they are merely placed in the tool box or drawer with their cutting portions unprotected, and some painful surprises occur when a hand is inserted into a box or drawer and the owner is looking in another direction.

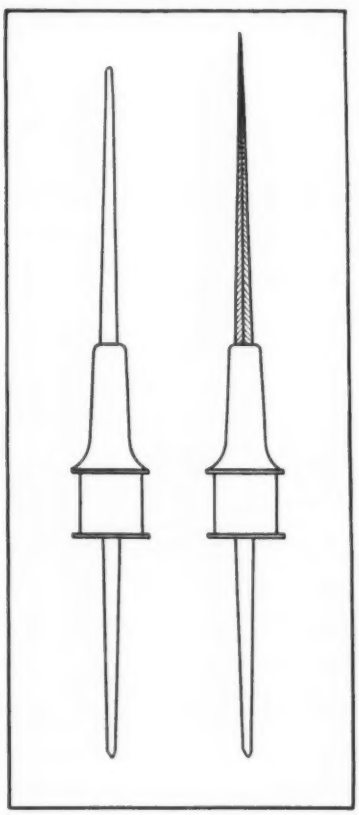
Sharp edges of wood chisels, saw teeth, and points on dividers take time to sharpen and maintain in an efficient condition, and these edges should be protected in storage.

Chisels can be protected perfectly with short bits of rubber hose. Cut an opening in the wall of the hose, insert the chisel, and the keen edge won't cause damage.

Divider points can be similarly protected with a piece of hose, but a hole in the hose is not needed. Just push the points through the tube.

A good saw protector can be made from a length of rubber hose slit longitudinally. The hose nips itself in place on the toothed edge and protects the teeth against damage.

Here's an Easy Way To Reclaim Choked Bobbins



FOUR-FACED SPINDLE is made from a standard one and is used to clean choked bobbins.

Our bobbins often get choked up with yarn waste or lint, and our problem was to find an economical way to clean these bobbins so they would seat properly and could be used again.

All we did was take an ordinary spindle (warp for warp bobbins, filling for filling bobbins) and have our machine shop shape it into a four-faced blade. Care must be taken to keep outside diameter the same and preserve the temper of the spindle. The spindle lengthens a little because it is brought to a point at the top.

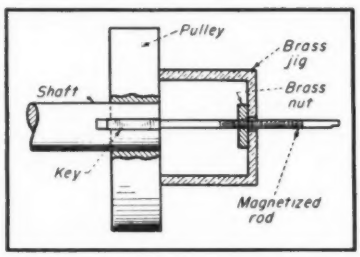
Then we had this special spindle put on the end of a convenient frame.

The operator sits in front of this spindle, grips a choked bobbin tightly, and gradually presses it down on the cleaning spindle. The bobbin is then reversed and pressed down as far as it will go.

We not only clean bobbins this way but also fix improperly bored bobbins that may have accidentally found their way into the mill.

Our bobbin costs are down, and so is our yarn waste from bobbins that didn't seat perfectly. *T. K. Pattabhiram, Warrangal, India.*

Use a Magnet To Withdraw Keys



MAGNETIZED ROD is screwed through a brass nut that pulls against the brass jig to extract keys that are difficult to grasp.

Keys that cannot be removed by conventional means can sometimes be withdrawn from their shafts with a strong magnetic rod.

To prevent the shaft and pulleys from becoming magnetized, I make a solution of equal parts of fine brass filings and shellac. I paint the parts around the key with a solution. The end of the key is cleaned off to present a good magnetic contact.

A brass box jig is fitted over the shaft, and a rod is screwed through a brass nut. A flat place is filed on the end of the rod to allow it to be turned with a wrench. The other end fits against the key.

An electromagnet may have to be used on some stubborn keys to remove them. *W. E. Warner, Essex, England.*

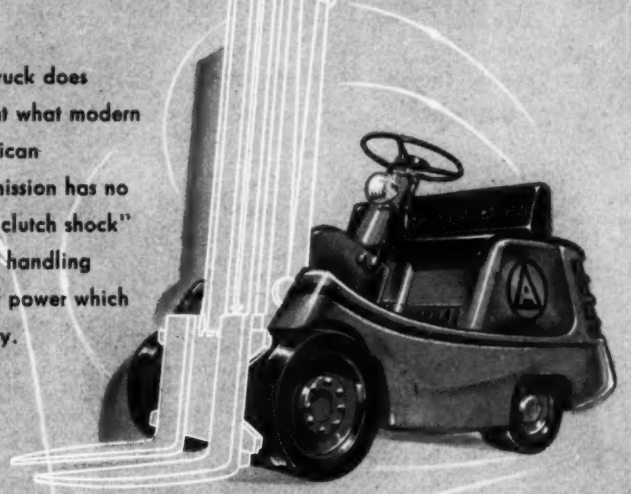
AMERICA'S FIRST GAS TRUCK WITH ELECTRIC TRANSMISSION

The new Automatic

DYNAMOTIVE

Entirely new engineering design produces America's first and only Gas Fork Lift Truck with *Electric Transmission*. No clutch! No gears to shift! No hydraulic torque converter or over-drive mechanism.

This new Dynamotive Gas Truck does for users of materials handling equipment what modern diesel-electric power has done for American Railroads. Its electric, infinite step transmission has no mechanical connections...transmits no "clutch shock" to engine...but brings to your materials handling jobs that fully controlled smooth flow of power which insures maximum economy and efficiency.



HERE'S WHAT AUTOMATIC'S ELECTRIC TRANSMISSION MEANS TO YOU: No gears to shift • No clutch to manipulate • No engine shock due to clutching • No hydraulic torque converter • No over-drive mechanism • No mechanical connection from engine to drive unit • Maximum comfort and ease of operation for driver • Foot operated lift and tilt • Interlocked dual brake system for maximum safety • Electric truck reliability • Infinite acceleration range with minimum power loss • Engine speed automatically adjusts to load requirement • Minimum engine wear—maximum life • Less fuel consumption • All advantages of torque converters and overdrive without mechanical devices • Minimum down time • Maximum accessibility • No aisle projections.

Plus these Automatic industry-proved features:

Silicone insulation for electric components • Heavy section rolled manganese alloy steel uprights • Ball bearing mounted carriage and upright rollers • Hydraulic safety fuses (with duo lift).

Designed by Ulinski, styled by Sakhnoffsky

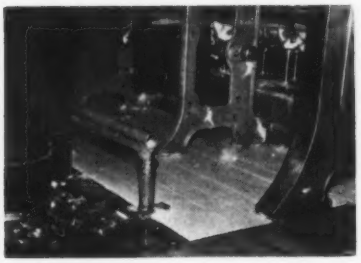
For further data about the new Dynamotive Truck, write:

Automatic

97 W. 87th St., Dept A-4
Chicago 20, Illinois

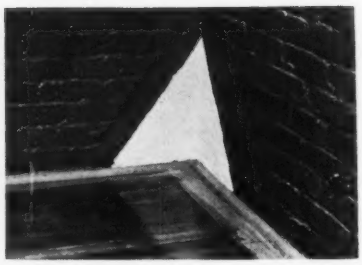
WORLD'S LARGEST EXCLUSIVE BUILDER OF ELECTRIC DRIVEN INDUSTRIAL TRUCKS

Three Ways Floor Paint Can Improve Housekeeping



UNDER MACHINES. A neat panel of oil-resistant paint under a machine collects less lint and dirt than the adjacent floor subject to the same conditions. The paint repels oil, dries in 30 mins., and can be applied directly on an oil-soaked floor.

UNDER TRASH CANS. If a piece of paper or a dirty cup misses the can and lands on the spotless area below, who'd leave it there? This out-of-traffic area has also been covered with oil-resistant paint. Painting a stripe on the can itself helps, too.



IN CORNERS. No dirt can hide here. A paint panel covers a 4-in. strip along the wall where floor-machine operation is difficult; and a white triangle reflects light into the corner and discourages dirt. *G. H. Tennant Co., Minneapolis, Minn.*

How To Check Laps Without a Lapmeter

We found (much to our sorrow) that the job of measuring and weighing successive yards of a picker lap is easier said than done.

Here is our simple, rapid, and inexpensive method.

Equipment:

A table 2½ yds. long and a little wider than the picker lap

A rectangular frame (of 2x½-in. stock) 1 yd. long and 4 ins. wider than the lap

A beaker full of fugitive tint

A balance accurate to the closest ½ oz. and of sufficient capacity to weigh 1 yd. of lap

A large pair of scissors

Method:

Two men are needed to do the job. The lap is unrolled on the table, and the frame is laid on top of the lap.

The cord is dipped in the tint, held close to the outside edge of the frame, and snapped to leave a line on the lap. One line is made at each side of the frame; then the frame is removed.

The 1-yd. section is cut out with the scissors, weighed, and the weight is recorded.

To repeat the operation, more of the lap is unrolled, the frame is laid on perfectly parallel with the last cut, and another line is made.

The tint gives no trouble because it comes out readily in finishing. The test lengths, of course, are reprocessed through the pickers.

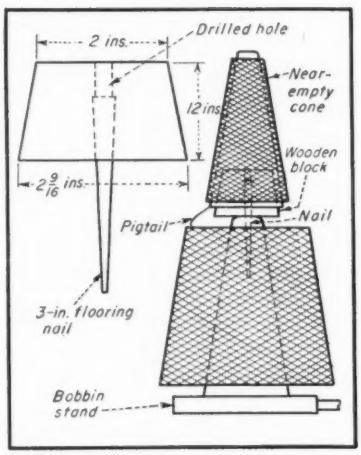
This method eliminates the chances of an error in measuring 1 yd. each time, assures a straight cut, and takes little time. *G. D. Wilkinson, Sorel, P. Q.*

Our Low Knitting Cones Don't Fly Off Revolving Heads

We could not use double tie-ups or pigtails on our revolving-head knitting machines because the near-empty cone would frequently be thrown off the full cone.

We overcame the difficulty by making wooden blocks to fit snugly inside the cones. The 1½-in.-long round block was turned so that one end measured 2 ins. and the other $2\frac{9}{16}$ ins. in diameter. A small hole was drilled down the center, and a 3-in. flooring nail was driven in the hole.

A near-empty cone is fitted over the block, and the nail is put in the top of a full cone. The pigtail is tied to the yarn on the near-empty cone, and the machine is started up. Now the empty cone doesn't fly off. *Leonard Mauer, Brooklyn, N. Y.*



WOODEN BLOCK fits inside a near-empty yarn cone. The nail driven through the block prevents the cone from flying off a full cone when double tie-ups are used on revolving-head knitters.

Best-Kink Awards for October and November

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 200 practical mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answer in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.

The best Kink for October, according to TEXTILE WORLD reader-judges was:

"Machine Cleans 240 Revolving Clearers an Hour"
By Lloyd Sickles, Box 87, Whitnel, N. C.

The November contest resulted in a tie. The best Kinks for November were:

"Winder Stoppages Reduced With Adjustable Weight"
By Dan Singer, Aero Backer Knitting Mills, New York, N. Y.

and

"Use a Removable Insert To Repair Beam Journals"
By Carl F. Franzen, Joanna Mills, Joanna, S. C.

This Simple Device Makes Box-Motion Action Positive

The device consists of only three

NEW

Lint-tight

LOOM SWITCH

with important DESIGN LEADERSHIP features...

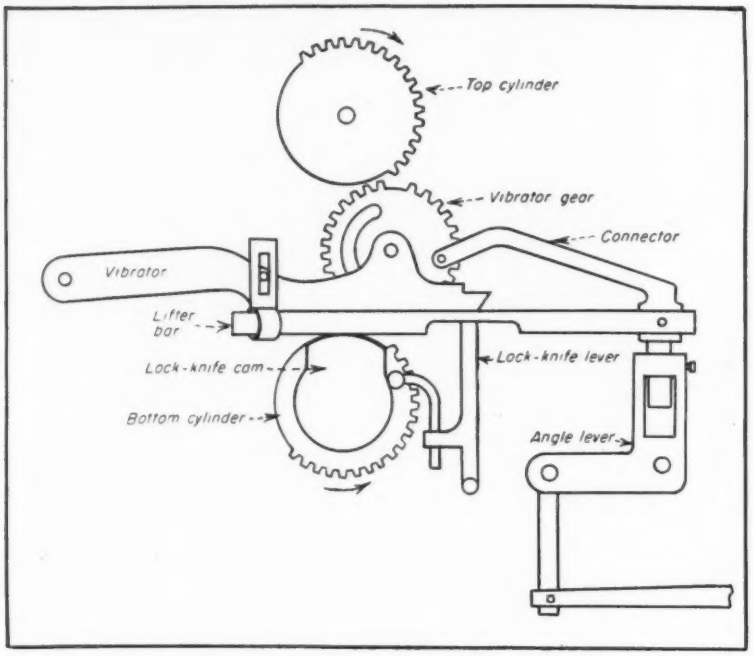
- Flush handle reduces possibility of damage or accidental operation. Easy to operate with simple up-and-down motion. Handle position clearly shows whether starter is ON or OFF.
- Over-center cam type cover latch provides heavy clamping pressure on neoprene sealing gasket.
- Vibration or shock conditions will not affect toggle mechanism.
- Simplified wiring. Line terminals at bottom for easy floor pedestal mounting.
- Plenty of wiring space. 1¾" top and bottom. ½" at each side.
- Cover is interlocked to prevent opening when starter is "ON."
- Protected type overloads permit group fusing of several motors on a single branch circuit.
- Mechanical linkage is provided to force contacts open with direct pressure from handle.

Write for Loom Switch Bulletin 2510-R.
Address Square D Company, 4041 N. Richards Street, Milwaukee 12, Wisconsin.

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

SQUARE D COMPANY

This Simple Device Makes Box-Motion Action Positive



THE LIFTER BAR and the vibrator are in their forward position and the top shuttle box is level with the race plate. The lock-knife cam has raised the lifter bar, the vibrator is being held up by the lock knife, and the top cylinder is engaging the vibrator gear. When the box movement is completed, the lifter bar drops down to let the bottom cylinder engage the vibrator gear and change the box motion to the second shuttle.

The box motions on most of our older 2x1 silk looms with dobbies are the side-plate vibrator type. When we use 20 harnesses on these dobbies, we have no way of indicating box-motion changes because the last jack (the back one) is used to control the whorl movement.

It is often necessary to use two-shuttle weaves on 20-harness fabrics to mix the filling or to put in S- or Z-twist filling.

We have made a simple, inexpensive device to control the box motion. The device consists of only three parts, and they are quickly made. The parts are a lifter bar, a vibrator lifter, and a stud.

The lifter bar is made from cold-rolled-steel flat stock 16 ins. long, 1 in. wide, and $\frac{3}{16}$ in. thick. A $\frac{3}{8}$-in. hole is bored in one end of the bar. This same end is notched for 2 ins. about one-third of the way from the end.

The vibrator lifter is made from a 6-in. piece of the same stock. A slot 1 in. long and $\frac{1}{2}$ in. wide is cut in one end of the vibrator lifter. The other end is bent to form an inside rectangular surface to hold one end of the lifter bar.

The stud is made from a $\frac{3}{8}$-in. bolt by cutting off the head and boring a $\frac{1}{8}$-in. hole for a cotter pin in the head end of it.

To apply the device to our looms, we bored a $\frac{7}{16}$-in. hole in the vibrator for a bolt to hold the vibrator lifter.

The tip of the angle lever of the box motion has a hole in it, and this hole is tapped for the stud.

The vibrator lifter is bolted to the vibrator, the lifter bar is slipped through the vibrator lifter with the notched surface down, and the lifter bar is fastened over the stud placed in the angle lever. A cotter pin holds the lifter bar in position.

This is the way the device works. The lock-knife cam raises the lifter bar and the vibrator so that the vibrator gear engages the top cylinder. Then the angle lever is raised and lowered to control the box motion. On every second pick of the loom, the whorl motion will change. *Charles S. Bicksler, Lancaster, Pa.*

Electric Eyes Help To Avoid Traffic Mishaps

Got a traffic problem at an outside corner of your mill, in the warehouse, or in the plant?

An idea developed by Standard Pressed Steel Co., Jenkintown, Pa., may be applicable to your situation.

Fix up a light source and a photocell so that stop lights are operated. When a truck breaks the beam, red lights automatically go on to stop traffic the other way or to warn pedestrians. (You could just as easily rig up a bell or other sound warning signal).

The whole thing costs about $250; so you won't be putting one at every corner. But the cost is low when you consider that a life could be saved or a serious accident avoided.

Grooves in Driving-Clutch Disk Prevent Sticking

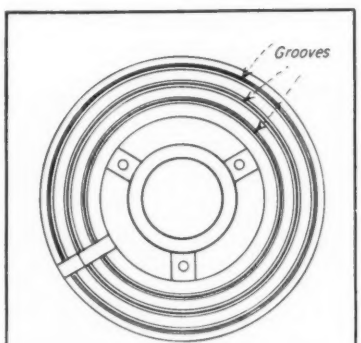
Oil in the surface of the driving-clutch disks of our looms used to cause the disks to stick to the clutch plates.

We have corrected this condition by cutting grooves in the clutch disks.

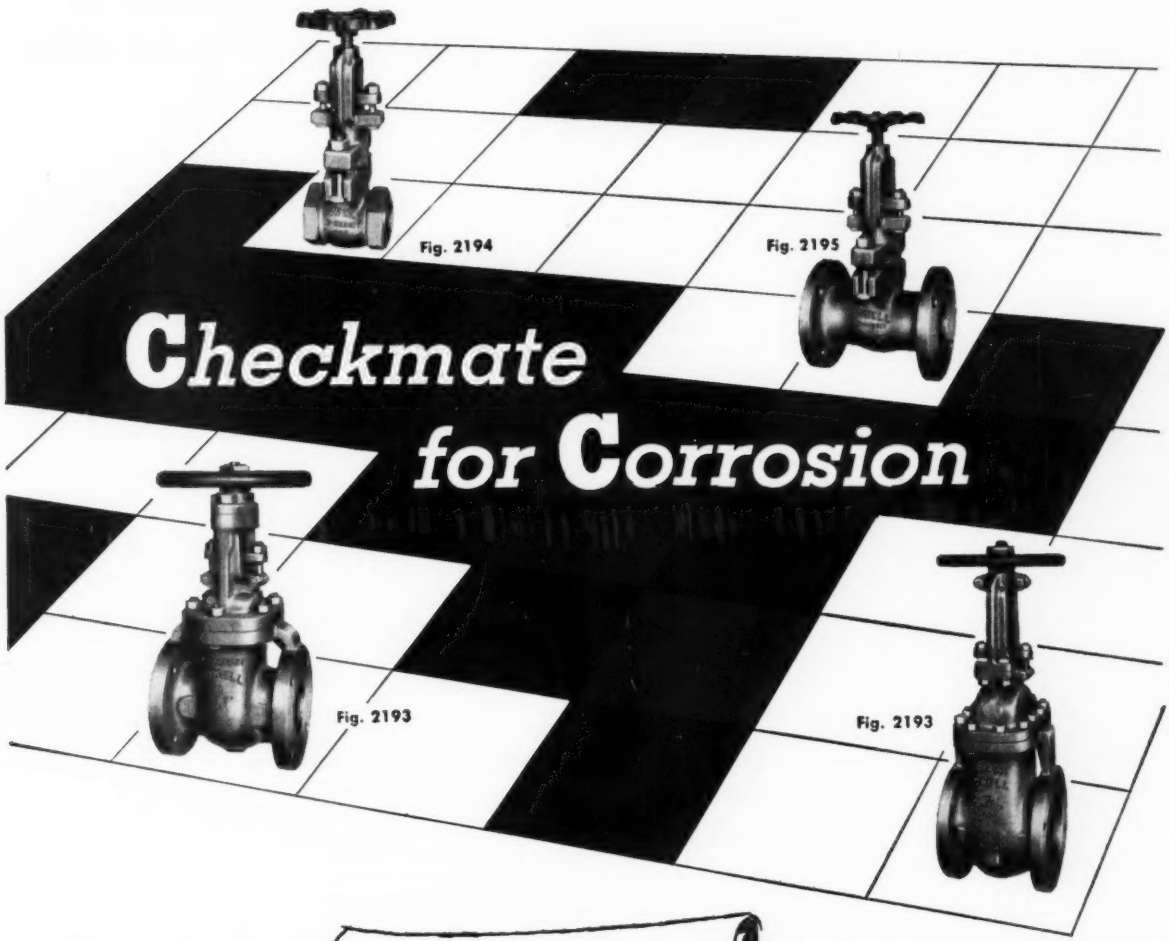
When a driving-clutch disk is removed from a loom, it is sent to our machine shop to be grooved. A groove about $\frac{3}{32}$ in. deep is cut in the center of each of three ribs of the disk.

The only cost is the machinist's time.

Grease and oil that formerly stayed on the surface of the disks now settles in the grooves, and sticking is prevented.



GROOVES ARE CUT in the ribs of the disk to catch loose oil or grease, and sticking is prevented.

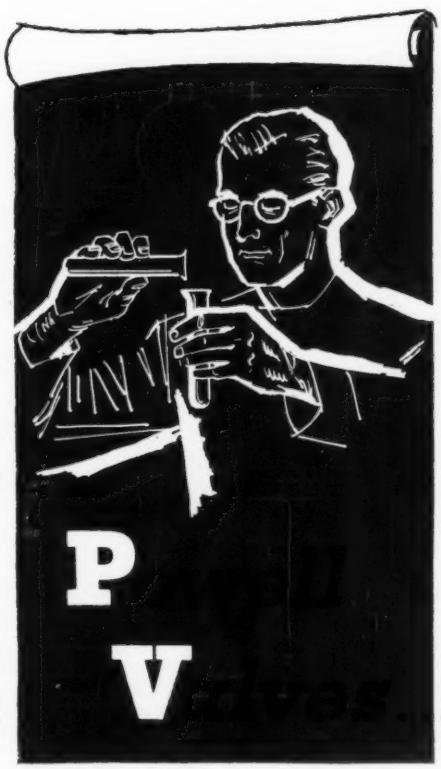


GATE VALVE *(upper left)* **Fig. 2194** for 225 pounds W.O.G. Screwed ends, bolted flanged bonnet, inside screw rising stem. Body and bonnet are made of Ni-Resist, with 18-8S Mo Stainless Steel (Type 316) stem, seats, and wedge. Sizes ¼" to 2", inclusive.

GATE VALVE *(upper right)* **Fig. 2195** for 200 pounds W.O.G. Flanged ends, bolted flanged bonnet, inside screw rising stem. Ni-Resist body and bonnet, with stem, seats, and wedge made of 18-8S Mo (Type 316) Stainless Steel. Sizes 1" to 3", inclusive.

GATE VALVE *(lower left)* **Fig. 2193** for 200 pounds W.O.G. Flanged ends, bolted flanged bonnet, outside screw rising stem and one-piece yoke. Body, bonnet, and yoke are Ni-Resist. Stem, seats, and wedge are 18-8S Mo (Type 316) Stainless Steel. Size 4".

LARGE SIZE GATE VALVE *(lower right)* **Fig. 2193,** 5" to 12", inclusive, for 200 pounds W.O.G. Flanged ends, bolted flanged bonnet, outside screw rising stem and two-piece yoke. Ni-Resist body, bonnet, and yoke, with 18-8S Mo (Type 316) Stainless Steel stem, seats and wedge faces.



It's a winning move every time you select Powell *Ni-Resist* Valves. For here is an alloy that has far greater corrosion and heat resistance than ordinary Cast Iron. Similar to gray iron, and resembling austenitic stainless steel in many ways, no other cast metal offers such a unique combination of useful properties.

Powell Ni-Resist Valves are especially adapted for handling pulp and paper mill liquors, oil refinery acids, alkalies and sludges, caustic soda, pickling solutions, sea water and many other fluids. Shown here are just a few of them to help you checkmate the high cost of corrosion. They're available through distributors in principal cities. If a distributor is not located near you, just write us—The William Powell Company, Cincinnati 22, Ohio. We'll be pleased to tell you more about these valves—or to help you with your valve problems. Powell has probably solved more valve problems than any other organization in the world.

CONTROLS FOR THE LIFE LINES OF INDUSTRY

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 For more information, write direct or use Reader Service post card.

Leather Template Helps Knitters Replace Sections

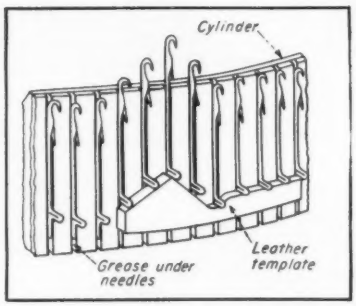
When we took a cylinder cam section off our knitting machines to clear out a broken needle butt, we had trouble getting the section back on because the needles would slip down below the cam contour.

I made a template by removing the raising cam from the section, placing it against a strip of ¼-in. leather, and drawing the cam contour. I then cut out the cam shape with a sharp-pointed knife.

I put grease in the slots under the needles to hold them up and placed the leather template against the cylinder.

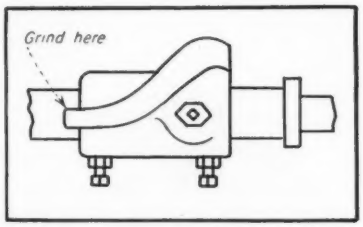
The needles are pushed down to form the cam contour, and the cam sections then fit easily into their proper position.

Because the template is flexible, it can be used for all cylinder circumferences; and I find it useful to guide needles into the cam track as I slowly turn the machine. *L. Boger, Pfafftown, N. C.*



LEATHER TEMPLATE is made to conform with the raising cams. Needles are supported with grease while cam sections are placed in position.

How We Prevent Picking-Motion Breakdowns



PICKING-SHOE POINT is ground to a beveled surface 3/16 in. back from the front tip to prevent breakdowns.

The stop screws for the picking shoes often work loose on our C-4 looms and cause damage to the picking motion. Sometimes the picking rolls wear out when the screws come loose; at other times, the picking shafts or picking-roll stands break.

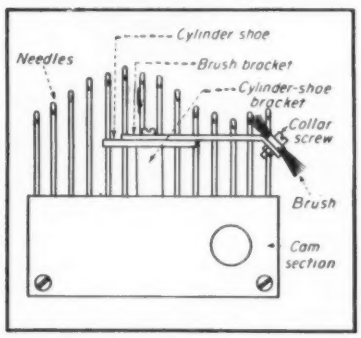
We prevent damage to our picking motion when the stop screws come loose by grinding off the point of the picking shoes.

We have an emery wheel on each group of 312 looms. When we put on a new picking shoe or have a picking shaft out of a loom for any reason, we grind off the top point of the front of the shoe back about ⅜ in.

Then when a stop screw gets out of adjustment, it cannot do any great damage before we catch it.

When we reset the stop screw on a ground shoe, we still set the shoe so that the picking roll strikes the shoe 1 in. from the theoretical point. *Bernard Dixon, Danville, Va.*

Circular Brush Keeps Knitting Machines Clean



CIRCULAR BRUSH is fitted to homemade bracket with a collar screw. The brush revolves as the head rotates and keeps the cylinder free from lint.

We use a blowing-off unit on our revolving-head circular-rib machines to keep the head of the machine free from lint.

But since the unit works on the back of the machine, lint still accumulates on the front side of the cylinder.

The cylinder is now kept clean all the way around by a circular brush that is fixed to a bracket with a collar screw.

The bracket is screwed to the cylinder shoe and set so that the needles turn the brush and sweep the lint away from the needles.

Measure Roll Diameters With Ring Gauges

We find that we can get several more buffings from our composition top rolls on drawing and roving frames by using ring gauges to measure roll diameters. Close roll settings often limit the maximum diameter of the rolls that can be run to prevent rolls in adjacent lines from rubbing together. A slight amount of clearance between rolls is necessary. With wider settings, larger top rolls can be used to give additional buffings and reduce the cost of roll replacement.

Slip ring gauges can be made and clearly marked for the maximum diameter of roll allowed on each frame or type of work. The gauge is sent to the roll shop when new cots are ordered for a set of rolls, and the cots are buffed to fit the gauge sent down.

When cots are buffed below a certain diameter, they do not provide a sufficient cushion to hold fibers securely, and irregular drafting may result. Use a minimum-diameter ring gauge in this case. No roll removed from the frame should be rebuffed if the buffing reduces the diameter below the minimum.

The use of these gauges eliminates undersized or oversized rolls and reduces roll costs. And better work results when selection of roll sizes is not left to the varying judgment of section men.

Mesh Net Helps In Needle Cleaning

When we overhaul our knitting machines, we clean our needles in carbon tetrachloride and find that a mesh net helps the job considerably.

As the needles are removed from the machine, they are placed in a net made from 1/16-in. brass or copper wire. The net is made to the shape of a square pan. The pan is filled with carbon tetrachloride, and the net filled with needles is lowered into the pan.

The needles are left to soak until they are required for replacement. The dirt sinks to the bottom of the pan, the net is lifted, and the excess solution is shaken off. The needles are wiped on a cloth and replaced in the knitting machine.

The solution can be drained off and used again. *Leon Gepner, New York, N. Y.*

We Use an Adapter To Change Pulleys

Here's a Wrench To Set

the *AUTOMATIC* answer to DIVERSIFIED TEMPERATURE REGULATION PROBLEMS...

JOHNSON CONTROL

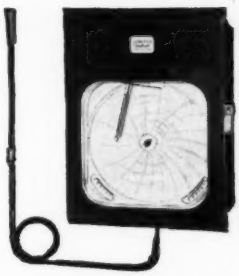
Owens-Corning Fiberglas Corp., Anderson, South Carolina. Lockwood-Greene Engineers, Inc., architects and engineers, New York and Spartanburg, S. C.; Carrier Corporation's Atlanta Office, air conditioning contractors.

Cloth from sand? Yes! That is what happens at the Owens-Corning Fiberglas plant at Anderson, South Carolina. Here, temperature and humidity conditions throughout the entire plant are controlled by Johnson.

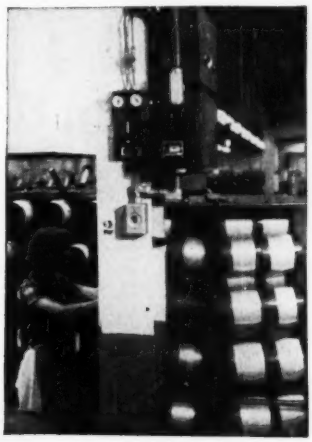
The Carrier centrifugal refrigeration machine; which furnishes the chilled water for cooling in connection with the air conditioning, is under the control of a Johnson T-1000 Single-Pen *Record-O-Stat*. In addition to acting as an accurate temperature controller, this instrument also insures that a continuous record of the temperature of the chilled water is always available for reference. This is important where industrial processes are dependent upon the space conditions. In the forming and finishing rooms, space temperatures are maintained at precise levels by Johnson T-800 Master and T-901 Submaster Thermostats which operate Johnson Valves and Damper Operators.

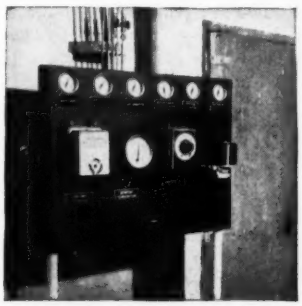
Finishing rooms, offices, cafeteria, shops, first aid room, kitchen and locker rooms are controlled by Johnson *Individual Room* Thermostats. All of the Johnson apparatus, engineered for the most exacting results, is combined into a complete Planned-for-the-Purpose, Installed-for-the-Purpose Control System. Another outstanding example of the adaptability of Johnson Control!

Whether *your* plant calls for the solution of intricate temperature and humidity control problems or merely the simple application of a single controller, call a Johnson engineer from a nearby Branch Office and get the benefit of over 60 years of experience offered by the *only* nationwide organization devoted exclusively to manufacturing, planning and installing automatic temperature and air conditioning control systems. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.



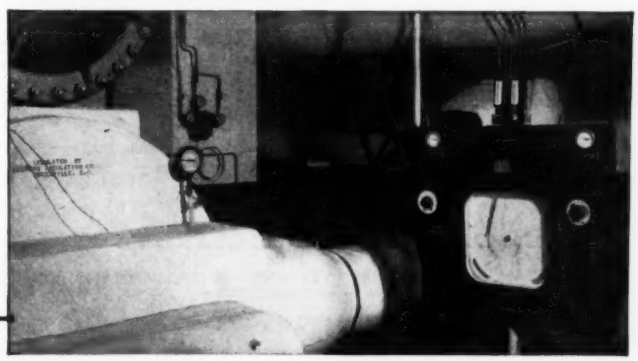
T-1000 Single-Pen *Record-O-Stat*



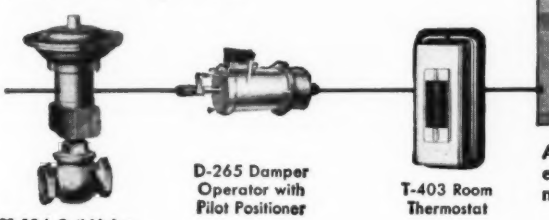


Temperatures in manufacturing and other areas are controlled by Johnson T-400 series Room Thermostats, one of which is shown above.

From control panel at left, a Johnson T-800 Thermostat controls the dew-point temperature of air leaving the air washer for the air conditioning unit serving a processing area.



Above, a Johnson T-1000 *Record-O-Stat* regulates and records the temperature of the chilled water leaving the Carrier centrifugal refrigeration machine.



V-104 Coil Valve

D-265 Damper Operator with Pilot Positioner

T-403 Room Thermostat

JOHNSON *Automatic Temperature and Air Conditioning* **CONTROL**

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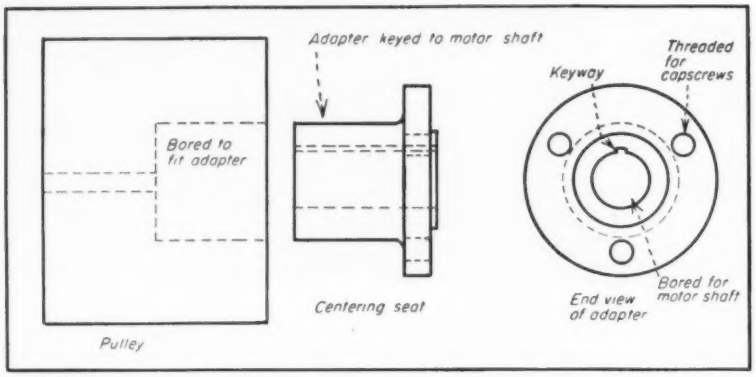
PORTAGE HOSIERY COMPANY, WISCONSIN

We Use an Adapter To Change Pulleys



PULLEY ADAPTER: To change a pulley, remove three capscrews, slide off the old pulley, slip on another pulley, replace the capscrews, and the job is finished.

Where pulleys of 5-in. dia. or larger have to be changed, we have equipped all the motors in our mill with adapters so that we can quickly change the pulleys.

The adapters are made from round steel stock 4 ins. in diameter and 4 ins. long. A hole is bored in the center of the stock to fit the motor shaft that the adapters are to be placed on. Then a keyway is cut.

The body of the stock is cut down to 2½ ins. in diameter with a ½-in.-thick flange left on one end. A centering seat of 2-in. dia. is left on the outside of the flange.

Three holes equally divided are drilled in the flanged surface and are tapped for ½-in. capscrews.

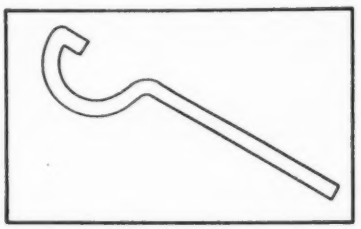
The adapters are pressed on the motor shaft and left permanently.

Then all pulleys in stock are bored on one side to fit over the core of the adapters. Three other holes are bored in pulleys to line up with the capscrew holes in the adapters.

Chalk is used on the centering seat to align the pulleys, and the three capscrews are tightened.

Now we simply remove the three capscrews to change a pulley. *A. de Swann, Ramat Gan, Israel*

Here's a Wrench To Set Protector-Rod Springs



THIS HOMEMADE WRENCH acts as a spanner wrench to quickly adjust protector-rod tension.

In adjusting the tension on protector-rod springs on XK and XD looms, the loomfixers at our mill used to knock the skin off their knuckles. We have made a wrench to stop these accidents.

The wrench is made from a 10-in. length of ¼-in. key steel. One end is bent to form a half circle, and the point is bent to form a hook.

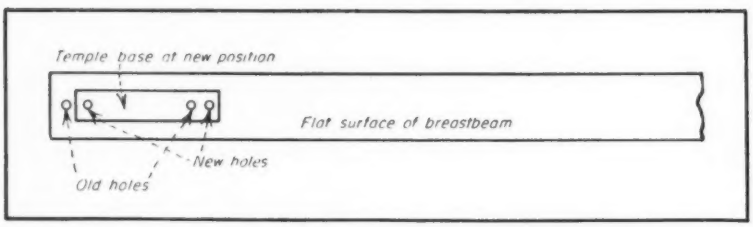
The curved surface of the wrench fits around the protector-rod tension collar, and the point fastens to the projections on the collar.

To adjust the tension on the protector-rod spring, our loomfixers hold the handle of the homemade wrench in the left hand, loosen the setscrew in the collar with an open-end wrench, adjust the tension with the homemade wrench, and then retighten the collar.

Our loomfixers now adjust the tension on protector rods quickly without accidents.

Since it is so easy to use the wrench, the loomfixers don't mind setting the collars; and as a result, all our protector rods now have the proper tension on the springs.

Make New Screw Holes to Hold Temples to Breastbeam



NEW HOLES are bored in the breastbeam, and the temple base is used as a guide.

The screw threads that hold temple bases to flat-top breastbeams on our X-model looms sometimes strip and the screws come loose.

We make new holes in the breastbeam to hold the screws.

We place the temple base ½ in. inside its old position and mark the positions of two new holes with a center punch. Then we drill out the holes with a ¼-in. drill and tap them for the screw with a ⅜-in. tap.

These new threads hold the temples securely to the breastbeam. Since the temples can be adjusted in the slots in the bases, the temple can be placed at any position to hold selvages in line. *Grady A. McLeod, Trion, Ga.*

Tape on Stick Cleans Knitting Stop Motions

Although we clean our knitting machines regularly with the air hose, lint still accumulated in the grooves of the top stop motion. The lint was picked up by the yarn and caused press-offs and damage to the machines.

We were able to make a good cleaning job by wrapping friction tape around the end of an old yarn stick. The yarn hook on the stick was broken off, and we were able to get into corners that the air hose would not touch. *Leonard Mauer, Brooklyn, N. Y.*

PORTAGE HOSIERY COMPANY, WISCONSIN

H. S. Bronson, Supt. at Portage told us:

"YOUR LINE OF GLADE OILS SERVES OUR PLANT COMPLETELY"

OIL STAINS ON FINISHED PRODUCTS are a particular hazard in the hosiery business. Glade Oils, quality lubricants, with high "wash-out" ability, prove perfect answer.

CITIES SERVICE LUBRICATION ENGINEERS offer on-the-job lubrication tests without upsetting tight schedules found throughout the textile industry.

Cities Service Lubrication Engineer Proved How Glade Oils Were Superior in Combating "Staining"!

According to Mr. Bronson, Superintendent at Portage, Cities Service Glade Oils were not the only oils tested by them. As he put it:

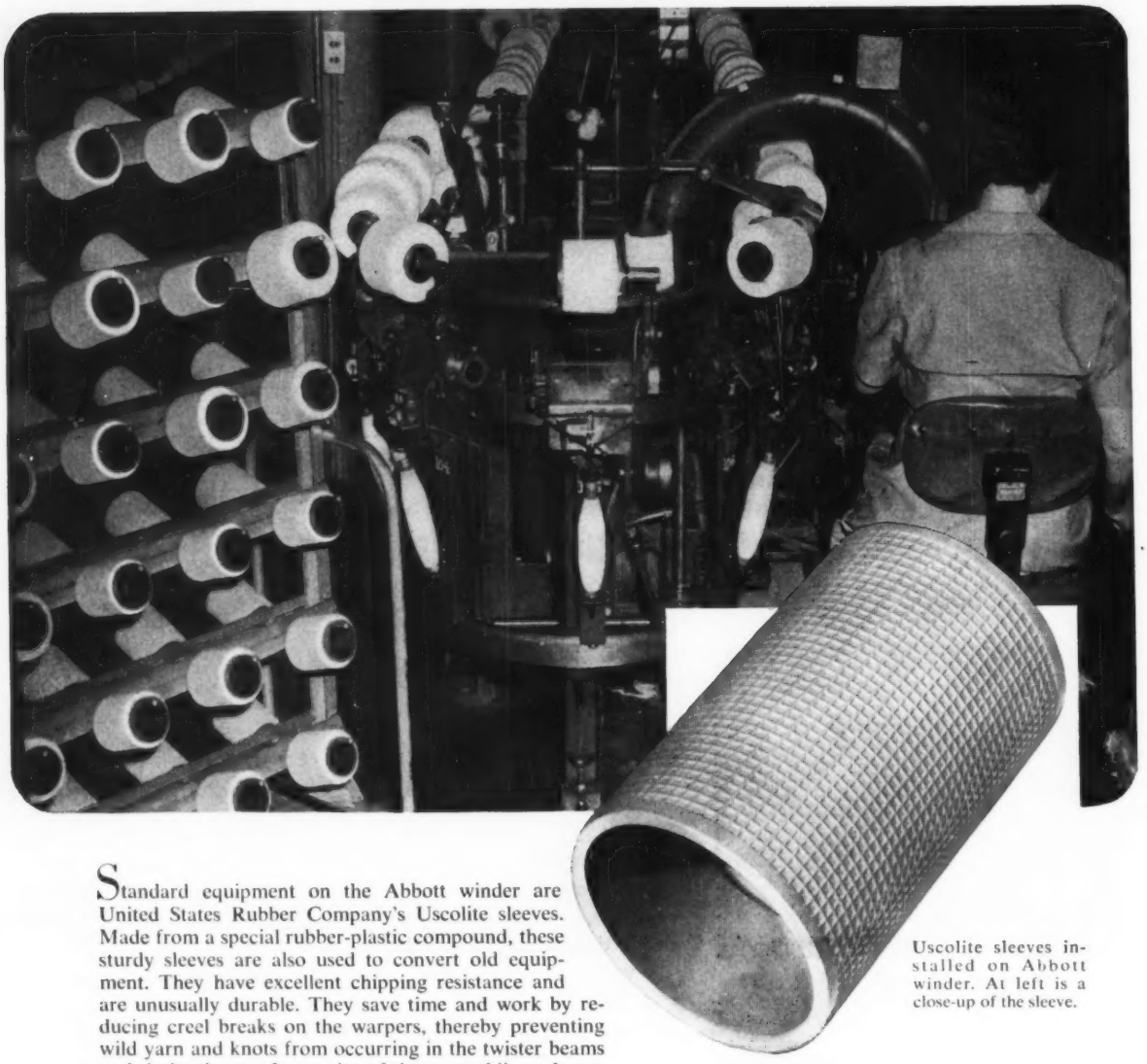
"We could not advocate any one brand until we had satisfied ourselves on the merits of several. The 'wash-out' ability of Cities Service Glade Oils clearly demonstrated their advantages.

"We were also very definitely impressed with the industrial survey of our textile machinery made by your local engineer. The survey did not impose any radical changes that might have upset our heavy production schedules . . . and the result was the solution (Cities Service Glade Oils) to a serious 'staining' problem we had!"

Perhaps a Cities Service Engineer has an answer that will mean time and money saved for you too. Contact the office nearest you or write Cities Service Oil Company, Dept. A-38, Sixty Wall Tower, New York 5, New York.

CITIES SERVICE
QUALITY PETROLEUM PRODUCTS

NEW Abbott winder sleeve molded of U. S. Uscolite!



Uscolite sleeves installed on Abbott winder. At left is a close-up of the sleeve.

Standard equipment on the Abbott winder are United States Rubber Company's Uscolite sleeves. Made from a special rubber-plastic compound, these sturdy sleeves are also used to convert old equipment. They have excellent chipping resistance and are unusually durable. They save time and work by reducing creel breaks on the warpers, thereby preventing wild yarn and knots from occurring in the twister beams and slasher beams. Large size of sleeve, enabling a larger package, also helps reduce creeling time. Available in 7 colors for easy yarn identification.

More economical operation plus *higher quality of output* are the results of using "U.S." textile mill specialties. Investigate the complete line. Consult any of our 25 District Sales Offices or write to address below.

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TEXTILE MACHINERY AND AUXILIARY EQUIPMENT

Direct-spinning frames are described in folder from American Rieter Co., Inc. Continuous-filament tows are cut to the desired staple length, drafted, and spun into a wide range of yarn numbers in one operation. The range of staple length is 2 to 6 ins; 1,000-den. tow can be spun to 120s (cotton). **(F-1)**

The Accelerotor, for wet- and dry-abrasion tests, is described in a brochure from Atlas Electric Devices Co. The instrument subjects textiles to dry wear, wet wear, moist abrasion, and laundering or dry-cleaning abrasion to obtain results in a few minutes. **(F-2)**

A two-roll quetsch of 15-ton capacity is described and illustrated in a circular from Birch Brothers, Inc. Designed for applying resin and other finishes, one roll is rubber covered and the other is stainless steel. Pressure is applied by air cylinders, and expanders remove wrinkles. **(F-3)**

A tufted-cotton-carpeting finishing range that saturates, treats, extracts, and folds in one continuous operation is described in a circular from Birch Brothers, Inc. Stainless-steel immersion rolls run in antifriction bearings. A medium squeeze roll hastens penetration, and a heavy squeeze roll removes excess moisture. **(F-4)**

A Weather-Ometer, designed to offer greater control for effective and accurate weather tests, is described in a brochure from Atlas Electric Devices Co. There is a constant velocity of air over the specimens and an accurate reproduction of sunlight. **(F-5)**

Automatic traveling cleaners to prevent accumulations of lint are described in a bulletin from Bahnson Co. The Allred cleaner is self-propelled along a ceiling-suspended track loop. The fan motor rotates 10° about an axis parallel to the track each time it completes a circuit of the loop. **(F-6)**

Portable potentiometers are described in a bulletin from Minneapolis-Honeywell Regulator Co. This instrument is used for on-the-spot checking of calibration where thermocouples are used for measurement or where pyrometer-type instruments are used. **(F-7)**

Adjustable-speed drives are described in a leaflet from Franklin Control Corp. The control panel takes a.c. power and by magnetic amplifiers and selenium rectifiers controls the speed of standard d.c. motors between 46 and 2,300 rpm. by the settings on the control station. **(F-8)**

Electric-motor progress over the last 50 years is described in the golden anniversary edition of the "Louis Allis Messenger" from the Louis Allis Co. Some early motors are described, along with their modern counterparts. **(F-9)**

New NEMA standards for 1- to 40-hp. induction motors are given in a bulletin from Louis Allis Co. Principal dimensions of the new and old NEMA frames are compared. **(F-10)**

Thermocouples, radiation detectors, and resistance bulbs are shown in a new catalog from Barber-Colman Co. Information on various sensing units and tips on instrument servicing are given. Protection tube, lead wire, and other indicating, controlling, and recording accessories are described. **(F-11)**

Roller bearings are described in a catalog from Hyatt Bearings Div., General Motors Corp. Dimensions, load ratings, and application data of solid-roller, solid-race, split-race, and industrial-inch bearings are given. **(F-12)**

Electric-heating elements are described in a catalog from Heatube Corp. The types of heating units include rod heaters, pipe-fitting water-immersion heaters, cartridge heaters, strip-ring-band heaters, and portable-pail heaters. **(F-13)**

Roving-frame motors are described in a bulletin from Allis-Chalmers Mfg. Co. The motors feature slow, smooth acceleration to provide even tension on the roving during starting periods. A large fan sweeps air through the passages of the end bells and around the stator. **(F-14)**

Stock gears, speed reducers, and special gears are described in a catalog from Grant Gear Works, Inc. The catalog includes 40 pages of tables and engineering information relating to power transmission. The special gears include internal gears, ratchets, chains, and sprockets. **(F-15)**

Grinding rubber-covered rolls is the subject of an instruction sheet furnished

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Reader Service (Continued)

by Stowe-Woodward, Inc. You can grind your own rolls or the company will do it for you. The instructions tell you how. **(F-16)**

SUPPLIES AND CHEMICALS

Cotton-card roll-brush changing is described in a booklet from Fuller Brush Co. Illustrations show how brush strips can be fixed with screws so that worn brushes can be changed in a short time. **(F-17)**

Bobbins, shuttles, spools, and other yarn carriers are described in a catalog from U S Bobbin & Shuttle Co. Instructions for ordering bobbins are given. Specifications are given for roving bobbins, skewers, automatic-loom bobbins, quills, and twister spools. **(F-18)**

A nonstick coating for dry cans, slasher cylinders, vats, troughs, and metal rollers is described in a bulletin from General Plastics Corp. Teflon polytetrafluoroethylene finish is fused on the parts at about 700° F.; so the coating is good up to this temperature. **(F-19)**

Rayon shrinkage control by the Avcoset process is the subject of a booklet from American Viscose Corp. Charts show how Avcoset is effective through 50 washings. Wash-test results show the effect of the finish on fabric strength. Answers to typical questions on the finish are given. **(F-20)**

Cyanuric-chloride chemistry is described in a booket from American Cyanamid Co. The physical and chemical properties are detailed, and a reaction chart is given. Potential applications in dyeing, bleaching, and mothproofing are listed. **(F-21)**

Silicone products are described in a reference guide from Dow Corning Corp. Various silicone products are used for bonding resins, defoamers, dielectrics, diffusion-pump fluids, protective coatings, release agents, and water repellents. New applications for silicone fluid are detailed. **(F-22)**

Acidproof coatings are covered in a brochure from Electro Chemical Engineering & Mfg. Co. These vinyl and butadiene styrene acidproof resins give protection against acids, alkalis, and many solvent actions, and are used in synthetic-fiber plants and dye houses. **(F-23)**

Wool and nylon dyes are the subject of a booklet from E. I. Du Pont de Nemours & Co., Inc. Information relating to the application and fastness properties of Capracyl dyes on nylon and wool is given. Rate-of-absorption charts are shown for each dyestuff listed. **(F-24)**

An antifoaming agent is described in a leaflet from American Aniline Products, Inc. Depuma is an odorless, creamy-white emulsion that reduces scum formations. It is used in bleaching, scouring, dyeing, and printing, and for removing excess graphite from lace. **(F-25)**

A synthetic-fiber lubricant and antistatic agent for sewing threads is described in a booklet from Glyco Products Co., Inc. Polyethylene-glycol solution tends to eliminate breakage, lubricates thread, and reduces static charges. A cellulose sponge saturated with the solution is placed between the needle and the take-up bar. **(F-26)**

A brightening agent is described in a pamphlet from Hilton-Davis Chemical Co. Hiltamine Artic White Extra is an optional whitening agent with high substantivity to cotton. Properties, application, and testing procedure are described. **(F-27)**

"The Coloring of Post-war Synthetic Fibers" is the title of a booklet from Allied Chemical & Dye Corp. Dyeing techniques on Orion, Dacron, Acrilan, Dynel, and Vinyon, are described. Wash-test and Fade-Ometer-test results are shown with the various dyestuffs used. **(F-28)**

Fungicides and bactericides are described in a brochure from Antara Chem-

FAST
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How To Seal Corrugated Shipping Boxes
Do you know the five commonly used methods of sealing boxes? Write for your copy of booklet, "How To Seal Corrugated Shipping Boxes."
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- **One Lev-R-Matic Control** for forward and reverse...just *Push* to go forward—*Pull* for reverse—NO CLUTCH PEDAL—NO GEARS TO SHIFT!
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- **Easy to Get On and Off**—no obstructions. Free access from left or right side.
- **One-Piece Hood Raises for Easy Service Accessibility.**

These—and many more—exclusive MOBILIFT features makes this new D-424 the lift truck for you!

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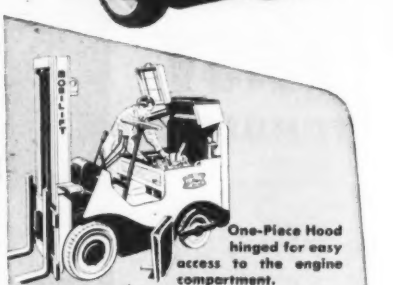

One-Piece Hood hinged for easy access to the engine compartment.

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Reader Service (Continued)

icals. Preventol GD and GDC are non-irritating, nonvolatile, and chemically stable. Application, test methods, and uses are listed. **(F-29)**

"Igepons" is the title of a booklet from Antara Chemicals. The functional properties, uses, and applications of these synthetic surfactants formed by chemical reaction of a fatty acid with an organic sulfonate are described. Charts show surface tension at various concentrations of water. **(F-30)**

Chemicals ranging from acetic acid to zinc sulfate are listed in a booklet from F. H. Ross Co. Properties, shipping information, and uses are described. There are 34 pages of miscellaneous tables and charts useful to the chemist and dyer. **(F-31)**

Ketones are described in a booklet from Carbide & Carbon Chemical Co. Physical properties, specifications, shipping data, constant boiling mixtures, and test methods are listed. **(F-32)**

Multistage centrifugal pumps are described in a bulletin from Ingersoll-Rand. The units, designed for boiler feed, are now available for all pressures from 300 to 1,000 psi. The impellers are arranged in opposed groups to balance the axial thrust within the pump. **(F-33)**

An electronic level indicator is described in a bulletin from Robertshaw-Fulton Controls Co. The instrument features simplified circuits, accuracy to ± 2%, and continuous indication at remote or local stations. **(F-34)**

Float and lever valves are described in a catalog from Schade Valve Mfg. Co. Applications, operating pressures and temperatures, construction, dimensions and weights, and ordering instructions are given. **(F-35)**

Good floors in industrial buildings are discussed in a booklet from The Monroe Co., Inc. While some floors must withstand heavy trucking and chemicals, other floors must be resilient and non-skid. Qualities of each resurfacing and repair product are described, and uses for each type are recommended. **(F-36)**

Steam generators and allied equipment are described in a bulletin from Union Iron Works. Eight basic arrangements of two-, three- and four-drum steam generators to meet a wide range of loads, pressures, and temperatures for power, process, and space heating are described. Heat-recovery units are shown. **(F-37)**

Metallizing is discussed in a bulletin from Metallizing Engineering Co. Typical applications of this process of applying hard surfaces are given. The deposits have a hardness of 56- to 61-Rockwell C scale. The amount of alloy used can be closely controlled. **(F-38)**

Steam traps are described in a bulletin from W. H. Nicholson & Co. The traps are equipped with bellows of bronze, monel metal, or stainless steel. Bodies are bronze, semisteel-and-cast-steel construction in ¼-in. to 2-in. sizes for all pressures from vacuum to 300 lbs. **(F-39)**

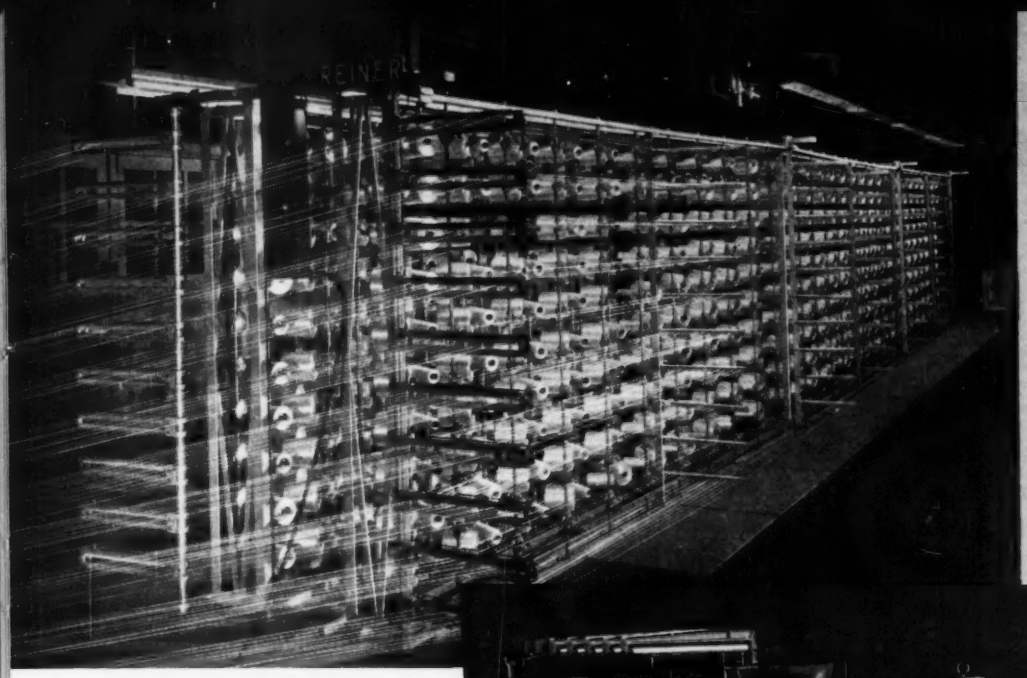
Control valves are described in a catalog from C. B. Hunt & Son, Inc. Sectional views of body, plunger, packing, and interior operation of air and hydraulic control valves and valve couplings are shown with sizes, actions, and permissible pressures and temperatures. **(F-40)**

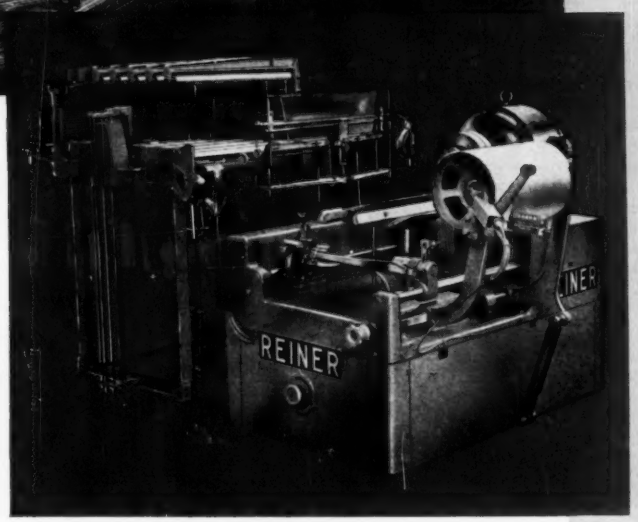
Hoists are described in a booklet from The Yale & Towne Mfg. Co. Differential, screw-gear, and spur-geared hand hoists are compared for relative efficiency and initial costs. Typical applications are given for a lifting and pulling tool with a range of ⅜ to 15 tons. **(F-41)**

Pipe insulation is described in a pamphlet from Gustin-Bacon Mfg. Co. The insulation is fine-blown glass fibers bonded with phenolic resin and molded into one-piece sections. It is available in 6-ft. lengths in a variety of sizes and thicknesses. It is nonbreakable and easy to apply. **(F-42)**

GENERAL

Two case histories of spinning-plant modernization are presented in a pam-





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CONDUCTIVE THREAD GUIDES for TRICOT WARPING of synthetic fibers

High speed warping and creeling of synthetic fibers has steadily increased. This created an imperative need for guides with long life and flawless performance under these exacting conditions. All guide requirements have been met with AlSiMag guides such as the complete AlSiMag line of guides for Reiner tricot warpers and creels as shown at the right. AlSiMag guides have these advantages:

1. LONGER LIFE. AlSiMag guides are hard, homogeneous. Mill records show that AlSiMag guide costs are often as little as 5% of former guide costs per pound of synthetic yarn processed.

2. UNIFORM TENSIONS. Finish is retained over long periods . . . is the same from guide to guide and lot to lot.

3. REDUCTION OF STATIC. Electrically conductive . . . helps ground static electricity created by high speed yarn travel.

4. DIMENSIONAL ACCURACY. Each guide is uniform physically and dimensionally. Speeds installation and cleaning. Permits uniform tension at every position on the creel or warper.

5. CUSTOM MADE. Standard AlSiMag guides are available for almost all equipment but if your processes or problems are different, guides are readily produced for your special needs. Such guides do not usually involve special tooling costs, frequently result in dramatic savings.

AMERICAN LAVA CORPORATION
CHATTANOOGA, TENNESSEE

ALSIMAG GUIDES FOR REINER CREELS AND WARPERS

These guides are carried in stock by Robert Reiner, Inc., at Weehawken, New Jersey, for immediate shipment. These same guides can be ordered from American Lava Corporation, Chattanooga, Tennessee, for delivery from normal production schedules.

AlSiMag No. GE-19123
Reiner No. CR-1803
BALLOON REDUCING EYE
FOR TENSION BRACKET

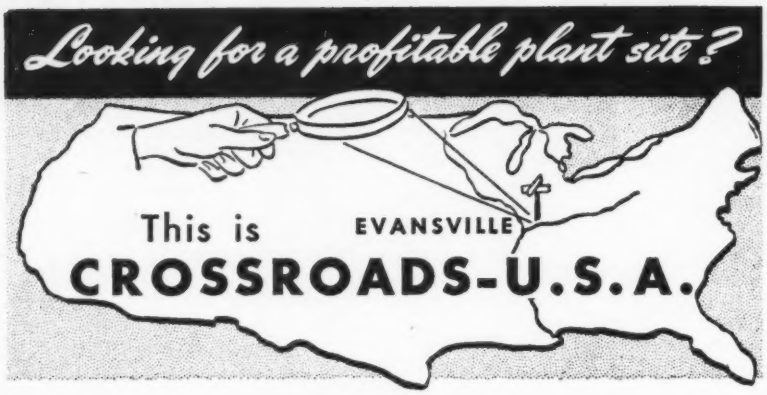
AlSiMag No. GE-19122
Reiner No. CR-1804
FRONT CREEL BAR EYE

AlSiMag No. GE-19121
Reiner No. CR-1805
EXIT EYE ON
TENSION BRACKET

AlSiMag No. GU-24681-A
Reiner No. CR-1952
TENSION POST—1¼" LONG

AlSiMag No. GE-26653
Reiner No. SW-1670
COLLECTING EYE BOARD EYE
FOR METAL BOARD EYELET . . .
RETAINED BY SPRING CLIP

AlSiMag No. GE-23138
Reiner No. CR-1892
STOP MOTION INSERT EYE
(Non Conductive AlSiMag 192)



With the extra advantage of transportation by water . . . close to the Center of Population . . . ruggedly American to the core . . . EVANSVILLE is a profitable location for industrial production . . . and Evansville industries are the proof!

● Any sales manager wants his men to locate as close as possible to the center of the sales district. If *your* sales territory is the U. S. A., Evansville offers important advantages as a base of operation. It is only sixty miles from the center of population, as defined by the Bureau of the Census. This location makes for savings in shipments and in travel . . . savings that are marginal additions to net profit.

This advantage is magnified by Evansville's location on the waterway from Pittsburgh to the Gulf of Mexico, for shipments of materials IN and finished products OUT. It is a terminal point for two of the five railroads that serve its industries. It is on the main highway from Chicago to Miami. And it is the intersection of two major airlines.

Water and rail and highway facilities meet at the Mead Johnson Terminal.

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Evansville's growth and development has been steady and consistent. Of its 194 manufacturing establishments, many have long records of favorable profits. Tax rates are favorable.* Home ownership is exceptionally high. As a trading center, it is the second city in Indiana. Productivity of the labor force was proved by its outstanding war record. Evansville is a solidly American community — a good place to locate.

May we give you further details? The coupon is for your convenience. *"Do It Today"!*

*Evidence on request.

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POSITION.....

(this request is confidential)

Reader Service (Continued)

phlet issued by American Textile Machinery Assn. One carded mill increased its production per manhour from 4.9 to 9.0 in six years, and another increased from 4.6 to 7.6 in three years. Details of the equipment changes are given. **(F-43)**

Scales are the subject of a catalog from Toledo Scale Co. The full-floating double-pendulum mechanism features one-piece sectors, to increase strength and precision and eliminate some hand adjustments. Indicating heads can be installed to face in one of eight directions. **(F-44)**

Dynel-cotton winter underwear is described in a booklet from Carbide & Carbon Chemicals Co. Dynel blends are said to stay warm and soft, be machine washable, be shrinkage controlled, not scratch, and be mothproof, strong, and durable. **(F-45)**

Tape dispensing by dial is described in a bulletin from Gummed Tape and Devices Co. Time and gummed tape are saved when this instrument measures the tape, moistens it, and cuts it off clean. Ready-to-use tape is delivered at 3 ft. per sec. **(F-46)**

Photo-offset printing for internal printing departments is described in a booklet from Minnesota Mining & Mfg. Co. The booklet lists office and business materials that are typed, written, or drawn; and provides information on how this material can be reproduced by photo-offset printing. **(F-47)**

Textile books are listed in a leaflet from Textile Book Publishers, Inc. The list includes prices of books on fibers, spinning, weaving, knitting, designing, yarn preparation, and other textile processes. **(F-48)**

Fire-resistant paints are the subject of a leaflet from Morris Paint & Varnish Co. The special chemicals in these paints release carbon dioxide to smother the flames when the paint is heated. Pictures show the difference between treated and untreated surfaces. **(F-49)**

"Product Research" is the title of a brochure from Arthur D. Little, Inc. It deals with the development of a new product, improvement of an established product or the method of producing it, and discovery of new uses for the product. **(F-50)**

On-the-Job Relationship

(*Continued from page 77*)

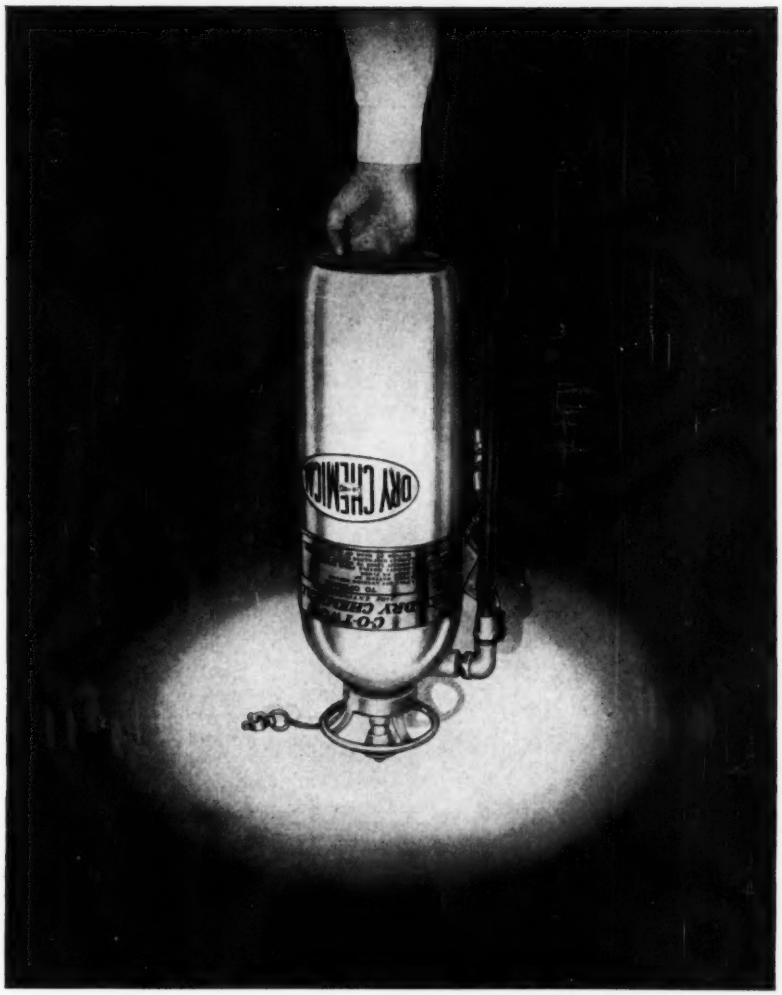
duced and cooperation, performance, and group morale are improved. If a supervisor doesn't establish a realistic relationship with his people, he is holding himself down as well as his people.

Diagram Demonstrates Problem

Putting those four requirements into effect is a dynamic process. The performance appraisal illustrated in the diagram shows one particular relationship between a supervisor and one of his men.

In this situation the individual's estimation of his value to the company is higher than his supervisor's rating; so there is a variance in the rating of performance on the current job. What happens if this variance is not resolved? The diagram projects the sad story. The individual goes along blithely assuming he can reach his

Bump that assures positive results



When fire strikes, seconds count . . . your fire extinguishers must be the right type and function properly from the very start . . . failure means serious losses.

The growing popularity of the highly effective powdered dry chemical fire extinguishing agent may be hampered by a drawback . . . settling or packing can occur after a lapse of time. However, with C-O-TWO Dry Chemical Type Fire Extinguishers there's no chance of this happening.

The exclusive inverting and bumping design of C-O-TWO Dry Chemical Type Fire Extinguishers provides mechanical breakage of the dry chemical by shifting its position in the cylinder. This outstanding mechanical breakage, plus continuous inert gas pressured agitation or fluffing of the skillfully blended free flowing dry chemical, guarantee lasting, foolproof fire protection.

No other brand on the market today gives you this extra margin for positive results. Inverting and bumping is only one of many unique design advantages that make C-O-TWO Dry Chemical Type Fire Extinguishers your best buy for killing flammable liquid and electrical fires, as well as surface fires involving ordinary combustible materials.

With C-O-TWO Dry Chemical Type Fire Extinguishers the heat-shielding dry chemical is a non-conducting, non-abrasive, non-toxic, finely pulverized powder compound . . . blankets fire instantly. Sizes range all the way from 4 to 150 pounds capacity . . . all fully approved by the Underwriters' Laboratories, Inc., Factory Mutual Laboratories and Government Bureaus.

Act now for complete free information on these top quality, sure-acting fire extinguishers. Remember fire doesn't wait . . . get the facts today!

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Squeez-Grip Carbon Dioxide Type Fire Extinguishers
Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
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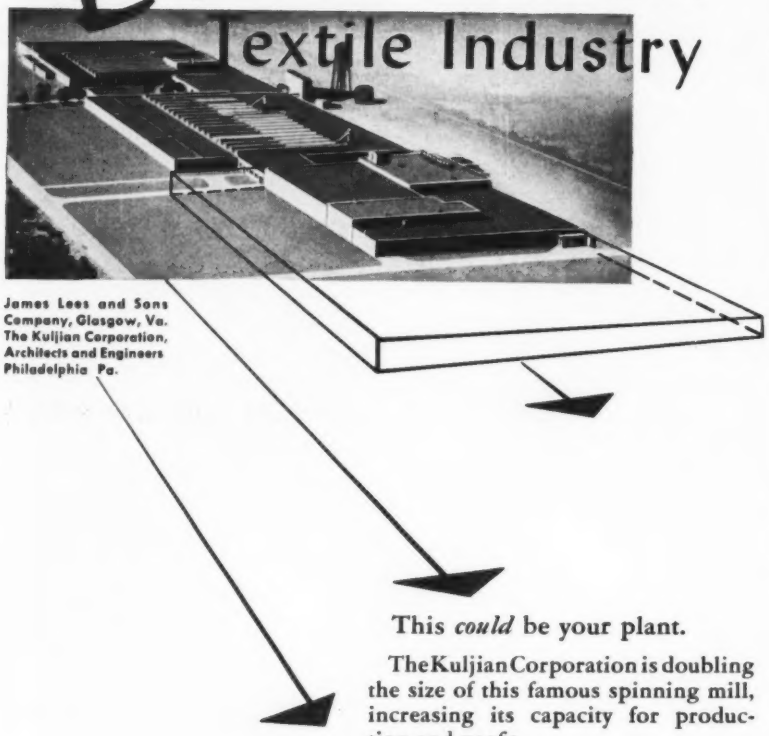
Expansion in the Textile Industry



James Lees and Sons Company, Glasgow, Va. The Kuljian Corporation, Architects and Engineers Philadelphia Pa.

This *could* be your plant.

The Kuljian Corporation is doubling the size of this famous spinning mill, increasing its capacity for production and profit.

By studying the needs of your industry, The Kuljian Corporation can offer engineering and construction services which coordinate your immediate expansion program with the long range plans of your company.

Backed by years of experience in many diversified industries, The Kuljian Corporation offers you the following services:

- **ENGINEERING** — Preliminary studies and layouts followed by complete detailed working drawings and specifications; the services of a resident engineer during construction are optional.
- **CONSTRUCTION** — Management of the over-all project including coordination of all sub-contractors and all directly employed field forces; accounting and purchasing services are optional.
- **ENGINEERING AND CONSTRUCTION** — Both of the above services on a single contract with unified responsibility for the project from preliminary studies to completed construction.

The Kuljian Corporation

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FRANKFURT

high level of aspiration. However, he has no basis for being realistic. In this case, there is a decided variance in the individual's goal and his estimated potential in the company.

A third variance exists between the time perspective of the individual and the company. We sometimes talk about a man like this as a guy who wants to go too far, too fast.

The major requirement on both sides is realism. Each point on the diagram is in reality only an estimation, and the points should be subjected to frequent questioning and modifications. Here is where the four principles come in. If each individual knows just what is expected of him, he has a basis for being realistic. If he knows how he is doing—that is, if his superior gives him a frank statement of his strong and weak points—he can be much more realistic. Modification is not just a one-way street. As often as not, the superior may change his ratings.

Individuals who know they can expect assistance, when needed, are not going to be afraid to rate themselves realistically. They will also be willing to accept their superiors' ratings.

But suppose you haven't been resolving the differences, as in the case diagrammed. The problem is a tough one. You either have to "break" the man's own rating down or "wedge" it down over a period of time.

How To Put Process Into Effect

The four principles should begin to operate when each man joins your organization. Practically, you will probably have to pick up right where you are. How can this be done in a practical way?

First, pin down what is expected of each man. This job description need not be long and involved, but it does need to be based on actual responsibilities and duties required on the job. Don't bother to look in other organizations for descriptions to borrow. Half the battle is in thinking through the problem yourself. Ask the man you're rating to do the same. The description should be just long enough (one, two, or three pages) to permit each subordinate to know what is expected of him.

Second, use the description to review subsequent performance. This is what we are paying him for; so why not rate each man against his job description? Don't get elaborate. Are you satisfied with his quality job? His safety job? His human-relations job? You can cross-check your ratings with your superior. Usually that's enough. On some points you may want to get information from others.

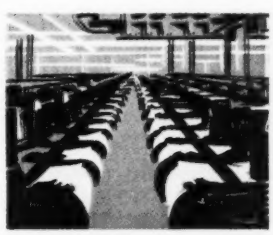
The vital requirement is that the

For tractors and implements...

for cars, trucks and busses...

NEW HYATT BARREL BEARING!

You're looking at a cross section of industry's newest find—*the bearing that's built with barrel-shaped rollers!* Developed by Hyatt, the Barrel Bearing is of true dual-purpose design—it takes load from any direction. But more than that, the Barrel Bearing is self-aligning—and misalignment of supporting parts cannot cause excessive wear, as it does with ordinary bearings. Now in volume production, this new bearing is in the newest trucks and busses, in farm, textile and construction equipment, and in many types of oil field machinery. In fact, if you own a new car there's a good chance that Barrel Bearings are in the wheels and differential.



for the latest in modern, high-efficiency textile machinery.

HYATT ROLLER BEARINGS

STRAIGHT BARREL TAPER

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Years of smooth running are built into every EPI Bobbin . . . first by precision machining each part from the best materials available . . . and second by *dynamically balancing every bobbin.* Long after many other bobbins are bob-bob-bobbin and jiggling, EPI Bobbins are running smoothly and serenely—making even packages and protecting spindles and machines from expensive wear.

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employee use the same description to rate himself prior to any discussion. Thus, both the supervisor and the employee are going through a process that will help them to be more realistic about their current ratings of performance.

Third, give some consideration to the progress each man can make. Rate him on those aspects of his performance that are critical as qualifications for a higher position. The stress should be placed on qualifications to avoid assumptions of "inherent rights" to a promotion.

Fourth, have a frank discussion with each individual. It's wise to let him tell you how he rates himself. You can assist him in being realistic both about his rating and his goals. This coaching interview requires skill. Operating men should look to their training directors to provide them with skill in coaching.

This discussion should concentrate on the variance between the self-ratings of the individual and the ratings of his supervisors. Reducing these variances tends to minimize the other types of variances.

Tricot Warping

(*Continued from page* 119)

Warping Speeds Are Reduced

High warping speeds cause greater yarn tension than low speeds, and some mills have reduced their warping speeds to 250 yds. per min. More even and lower tensions result, but a further advantage is gained: at this low speed, the warper can be stopped to remove slubs, bad knots, and tangled yarn.

These faults in the yarn, if allowed to pass to the knitting machine, produce holes and faults in the fabric and break guides and needles. If the elevators are used to turn back the warp and remove yarn faults, 98% perfect-quality cloth can be obtained.

One mill uses the elevator on 15-den. nylon yarns but not on 55-den. acetate yarns. A "butterfly" (sheet of paper) is put in the warp where a broken end occurs. The knitter watches for the butterflies, but invariably a fault is made in the cloth.

Blackboard Helps To Detect Faults

To aid the warper operator in detecting yarn faults, a blackboard is placed underneath the warp sheet. Taking faults out of yarn raises warping costs because an operator is required for every warper and more stop-

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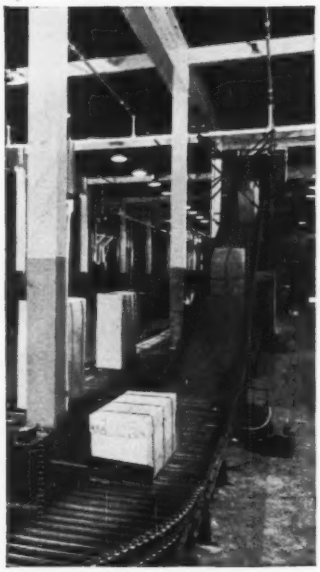
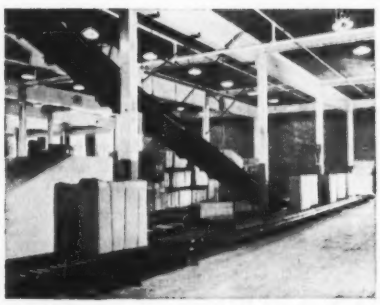


DON'T CARRY THAT PACKAGE!



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BRANCH OFFICES IN PRINCIPAL CITIES

168

pages occur. To compensate for this higher warping cost, knitting efficiency and knitter work loads are raised, but —perhaps more importantly—quality is improved.

Warper workloads vary throughout the industry. One mill employs one man at the warper and two girls at each creel, while another mill has three girls tending four creels and one girl stationed at the warpers. One installation of two warpers employs three girls: while two girls are creeling or cleaning, the third girl runs the other warper and patrols the creel.

Excessive stoppages are sometimes a signal for a thorough cleaning, and some mills have a regular maintenance schedule. Creels holding nylon yarn are cleaned every 120 hrs. in one mill and every 200,000 yds. in another mill. Creels running acetate yarn are cleaned every 200 hrs.

Creels Are Cleaned With Brushes and Pipe Cleaners

On these maintenance programs, the eyes and posts are cleaned with a paint brush dipped in a solution of borax and water. Each porcelain eye is then cleaned with a pipe cleaner or a medical swab. Solvent is applied to the reed with a brush. Yarn spindles are aligned every 18 days, and the posts are lowered to keep the ridge worn by the yarn from encountering the satin finish. Spindles are adjusted to produce one yarn balloon.

Greater attention is being paid to the maintenance of spools. One mill checks the flanges of every spool at the end of each run. A spool is put in a lathe, and the flanges are checked for trueness with a dial-test indicator. Beam flanges out more than 0.007 in. are trued up before being mounted on the warper. With the beam turning on the lathe, the inside flange walls are polished with fine emery cloth.

Some shade marks in tricot cloths are attributed to unbalanced beams. Beams can be balanced by removing or adding metal to the outside flange walls, but a balanced warp-beam device has been developed by Gibbs Machine Co. to make the job of balancing easier. Three rods (120° apart) project from the warp-beam shaft. The projecting rods are threaded, and nuts are adjusted on the rods to balance the beams.

Yarn-Eye Combination Reduced Static Problems

Static troubles are not too serious in those mills working at humidities of 65 to +68% with a temperature of 80° F. Blue AlSiMag eyes in the eyeboard and glass eyes on the creel worked wonders in one mill that ex-

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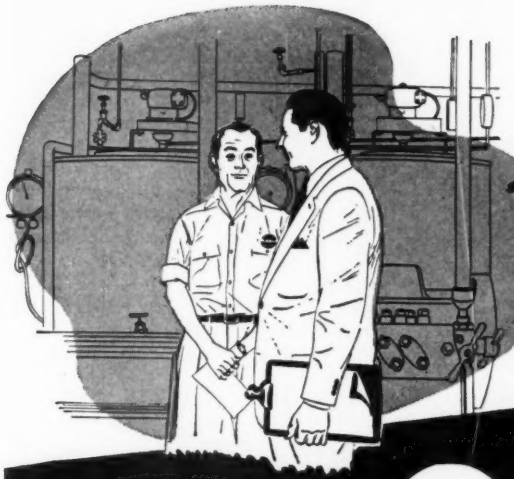

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perienced trouble with static. Glass eyes are not too popular in some mills because of their yarn-fraying tendencies when worn.

One static eliminator is usually fixed close to the reed on the warper head. In one case it was necessary to put in two additional eliminators behind the eyeboard.

One mill reports that ridges in its beams have been greatly reduced by the use of an air-operated presser roll.

Much of the success of these modern warping methods is due to the liason between the knitters and the builders of creels and warpers who work closely to knitters' specifications.

Weaving Drills and Twills

(*Continued from page 105*)

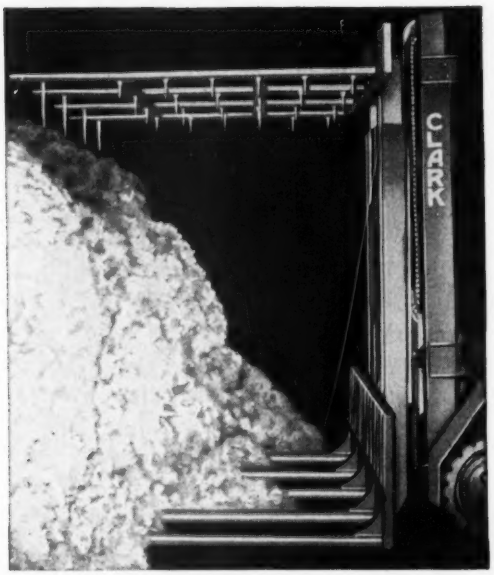
looms with the low-roll silk-type ratchet take-up motion, a piece of angle iron can be used to replace the top guide rod. With the angle iron, the cloth bypasses the breastbeam as it is woven and goes straight down inside the added angle iron.

Care should be taken to adjust the take-up motion. If the take-up is too tight, parts will be broken; if too loose, it may slip, and too many picks will be inserted in the cloth.

Check These 13 Things To Stop Broken Picks

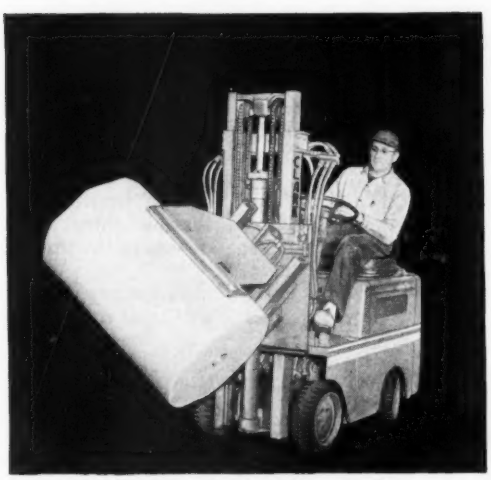
Broken picks or mispicks are one of the most common weaving defects in twills. If you adopt the following practices, you will reduce the number of broken picks in drills and twills:

1. Keep the shuttle perfectly smooth both inside and outside.
2. Use opossum fur and pig bristles to provide tension for the filling yarn.
3. Be sure the grooves on the front and bottom of shuttles are in good condition.
4. Provide good shuttle-spring grips to hold the bobbin tight and straight.
5. Keep all box and binder leathers smooth and in good condition.
6. Place a piece of wool or cotton waste at the right-hand front box plate to hold the filling firmly until the moving shuttle pulls it free.
7. Set the transferrer by Draper specifications.
8. Wrap the transferrer-fork tips with moleskin tape or use rubber tips.
9. Set and time the picking motion with gauges. Rule-of-thumb methods are not accurate enough here.
10. See that the filling feeler is set right and operating correctly.
11. Have sufficient yarn put on the bobbin bunches. For Midget or Holcombe feelers, the bunch should contain 5 to 8 yds. of yarn, depend-



Wool-handling device in action

Bale clamp handles one to three bales—rotates 90°


Roll clamp makes easy, safe work of handling rolls

How four leading mills save an average of $400-a-week

BY USING CLARK FORK TRUCKS

Lower costs, improved safety records, better quality among benefits reported to Michael J. Koroskys*, Assistant Professor, Lowell Textile Institute.

From arrival of raw materials—in bales or in bulk—all the way through to loading of finished goods for shipment, handling methods in textile mills are being revolutionized by Clark machines—with enormous boosts to profits.

Says one worsted mill superintendent: "Two men and a Clark truck equipped with a wool-handling device do the work of 12 men per shift—a big direct saving. Safety is greatly increased, housekeeping is vastly improved. Even product quality is decidedly better. We're really 'sold' on Clarks."

In addition to doing basic handling jobs faster and more safely, Clark trucks—with special attachments or standard forks—are saving time and money in numerous other ways: with clamps for handling bales; with a rotating clamp for safe, easy manipulation of rolls; for many heavy jobs in plant maintenance.

You may say that there's nothing here you can't adapt to your own business, with impressive profit—and probably you're right about it. It pays to find out. Consult your nearby Clark dealer, a man thoroughly qualified to help devise a handling system custom-fitted to your needs. He's listed in the Yellow Pages of your local directory—call him.

*How these four mills are getting big savings through Clark methods is detailed in an extremely valuable article by Prof. Koroskys, originally published in TEXTILE WORLD. A copy of the article is yours for the asking . . . use the coupon.

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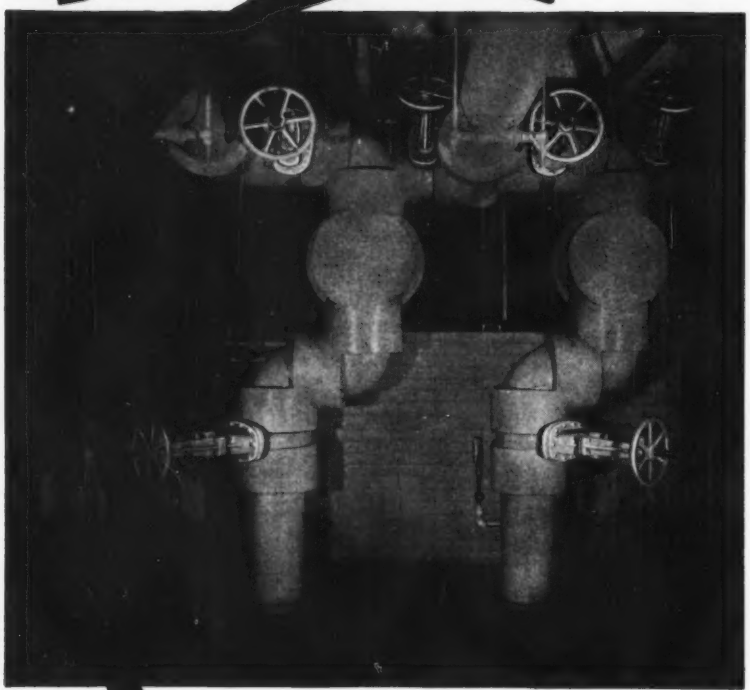

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ing on the width of the cloth. The bunch should not extend more than $\frac{3}{8}$ in. from the butt of the bobbin.

12. Train all weavers and loomfixers to match the filling.

13. Have weavers flag all looms breaking filling excessively.

Other Defects Are Reduced By Good Weaving Practices

Other defects commonly found in weaving drills and twills are: kinky filling, tight picks, ropy filling, jerkbacks, overshots, undershots, misdraws, drawbacks, and oil spots. These defects can be controlled by using good weaving and loomfixing practices.

Weavers can tend 26 to 36 looms on most styles of twills at 95% efficiency and at a reasonable low percentage of seconds.

The amount of size left in warps on most constructions of drills and twills should be 10 to 12%.

A relative-humidity reading as high as 88% is often necessary in weaving.

Because weaving costs are relatively high and because grading standards are higher than on many types of cloth, a sound preventive-maintenance program is essential to weave drills and twills successfully.

Georgia TOE

(*Continued from page 117*)

and results in better-running warps."

Mill C—"We run selvage ply yarns on one of the section beams. We think that we have better control of stretch this way."

Mill D—"We spread selvage ply yarns evenly throughout each section beam."

Mill E—"Since ply yarns are harder to dry than single yarns run at the same time on a slasher, we separate the ply yarns from the regular yarns back of the size box and do not run them through the size box. They are run through one set of squeeze rolls and then around the drying cylinders with the single yarns.

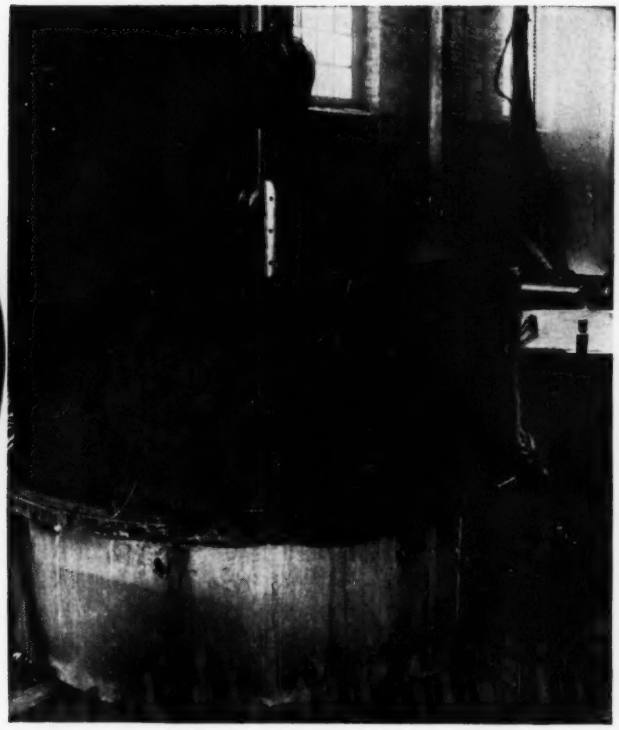
"Even with this care, we still have trouble drying the ply yarns sufficiently without overdrying the regular yarns."

Mill F—"Our maintenance department made a special creel to be used with selvage ply yarns from 20 to 32 total ends. The creel has tension controls similar to those on Barber-Colman high-speed warper creels.

"On warps with more than 32 selvage ends, we put the ends on one or two section beams."

Mill G—"We use both creels and section beams for our selvage ply

STOCK DYEING MACHINE
can be the starting point of surface treatment to produce better quality yarns. By adding Avisco textile chemicals at the dyeing machine, the dyed staple is simultaneously lubricated, softened, and treated to control static. Carding qualities are improved. Fibers have better cohesion, and produce a nep-free and splinter-free web that helps make a stronger, more uniform yarn.



Make better yarn from dyed stock— with AVISCO textile chemicals

Write for your copy of this new booklet— "Avisco Textile Chemicals"

Avisco textile chemicals were developed in cooperation with and are manufactured by the Atlas Powder Company, Wilmington, Delaware

Much of the quality of a fiber depends on its surface. For the best surface characteristics, treat your stock with Avisco textile chemicals— a versatile group of materials engineered to lubricate, control static and soften, all at the same time. Because they're 100% active, these chemicals do a superior job in small dosages. And they won't discolor, turn rancid, or wick out.

Many different types of Avisco chemicals are available for use with all fibers, natural and man-made . . . for processing fiber, yarn or fabric. Complete technical assistance by Avisco specialists helps you in the selection of the best materials and techniques for your own application. Write to Textile Chemicals Division, P.O. Box 455, Marcus Hook, Pa.; or Textile Chemicals Sales, 1617 Pennsylvania Blvd., Philadelphia, Pa.

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Snap-on*

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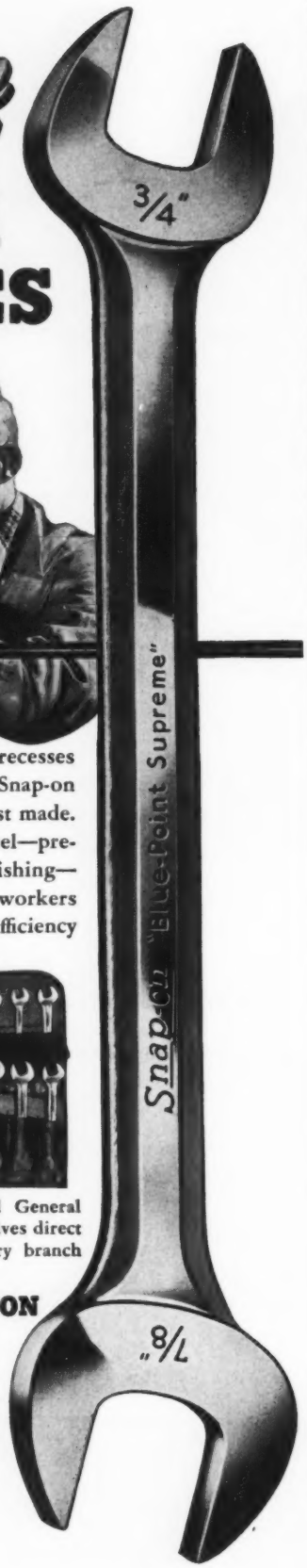
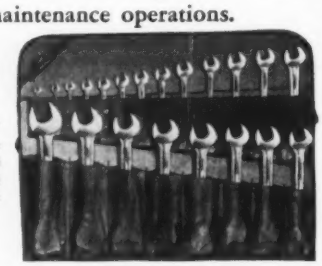
Open End WRENCHES



For jobs like this—or where nuts are set in recesses too narrow for other types of wrenches—Snap-on open end wrenches are the strongest, safest made. Every detail of design—the tough alloy steel—precision machining—heat treatment and finishing—are highest quality. In the hands of your workers Snap-on wrenches will contribute greater efficiency to assembly and maintenance operations.

OE-821-K.
21 WRENCH SET

In kit as illustrated. Contains all standard sizes, ¼" to 1⅛". Most sizes duplicated on different handles to meet requirements of many jobs.



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yarns. When we can get enough tension on the ends in a creel, creels are all right, but we get better results when we place the ends all on one section beam.

"Warps with body yarns and selvage yarns that vary greatly, say 16s in the body and 19/2 in the selvage, must be handled with care to make a smooth beam. In a case such as this, we skip a tooth in the comb between each selvage end."

Mill H—"We run selvage yarns from a creel and do not size them."

Alabama TOE

(*Continued from* page 125)

reading is of 6.0 for warp and 7.0 for filling.

Mill C tests two deliveries from two drawing frames daily on the evenness tester. The standard for average variation in breaker drawing is 3.34%. The upper control limit is 4.01%. The standard for finisher drawing is 4.1% with an upper control limit of 4.7%.

Evenness Control On Roving

Much variation was noted in the frequency of checking roving for evenness. Five mills check roving daily, two weekly, one monthly, six periodically (ranging from three weeks to six months), and two mills do not have a regular testing program.

Two bobbins are tested daily at Mill C on an evenness tester. The sample length is 20 yds. per bobbin. Average variation of 1.20-hk. roving is 9.8% with an upper control limit of 11.5%. The variation on 1.50-hk. roving is 10.1% with an upper control limit of 12.2%. The 3.00-hk. roving average is 10.7% with an upper control limit of 13.1%.

Mill G runs 10 yds. of roving from various frames through a sliver tester and allows a tolerance of 5%. This test is done twice yearly or when frames are overhauled. When a change in style or staple is made, roll settings are checked to find the best setting suited for the mill.

Four bobbins of roving from each frame are checked monthly for evenness at Mill N. The tolerance on 0.70-hk. roving is 36% maximum variation (6.0 integrator reading) and 0.90-hk.-roving tolerance is 45% maximum with a 7.5 integrator reading.

Roving-Frame Stop Motions

Mill B had this to report about electric stop motions for fly frames: "Doublings and singlings are eliminated because light sliver or an end down stops the machine. Slugs are

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For 67 years we have been improving on the design and physical properties of loom parts. That's our only business. We feel that we know something about it!

Probably your mill is already our customer because, today, HFL Improved Loom Parts are used in the weaving of cotton, wool, silk and synthetics in mills throughout the United States, Canada and 20 other countries.

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In view of present day difficulties in maintaining your own mailing lists, this efficient personalized service is particularly important in securing the comprehensive market coverage you need and want.

Ask for more detailed information today. You'll be surprised at the low over-all cost and the tested effectiveness of these hand-picked selections.

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reduced because flying lint is stopped when an end comes down.

"Ends down are reduced and there are no 'snow storms.' Broken-back ends caused by bobbins becoming too small when an end comes down are eliminated. Roving waste is reduced because only one end is down at a time."

Mill D reported less fly but more ends down with a vacuum stop motion. It is expected that this condition will be corrected by improvements in the electronic parts. Bottom clearers are hard to clean.

One 10x5 roving frame has been fitted with a vacuum stop motion in Mill I. The equipment stops the frame at once when an end comes down in the front, and ends down are not caused by other ends. When the sliver breaks back or laps on one of the rolls, the frame continues to run until the operator stops the frame or another end comes down.

Quality improvement is seen at Mill N because of vacuum stop motions on roving frames. Decreases in doublings, slubs, and gouts result. Ends down are reduced about 25%. Waste is reduced by the quick action of the stop motion. The frames stay cleaner because free lint is continually drawn into the vacuum system at each spindle.

Eleven mills reported no experience with stop motions on roving frames.

Exploring the Community

(*Continued from page* 131)

Bus Direct to Hathaway Manufacturing Company's Open House"—was provided.

With all the details worked out, open house officially began when in front of the gaily decorated mill entrance the Mayor of New Bedford cut a ribbon to admit the first visitor.

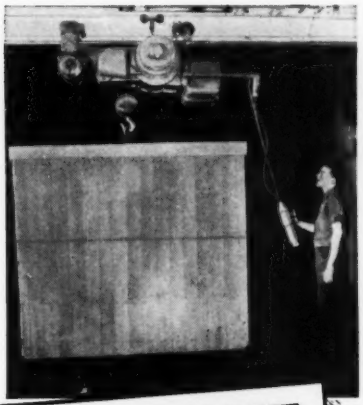
During the five days, more than 20,000 visitors walked upstairs and down, through more than a mile of Hathaway's spotless, gleaming, air-conditioned plant. They drank cokes, ate cookies, admired the exhibits, read the booklets, and shook hands with President Seabury Stanton and other executives of the mills.

The visitation was an eye opener to all who made the tour. They were impressed and intrigued by the beautifully clean and comfortable working conditions, the efficiency of modern manufacturing methods, and the almost intelligent machines, many controlled by electronic devices.

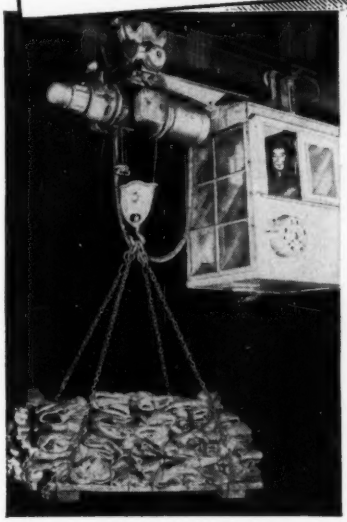
When the doors finally closed behind the last guest, Hathaway didn't have to take stock of the community's sentiments about the plant or

SHEPARD NILES
Floor-Operated Hoist

Operator mainly occupied with other duties. Hoist used for fast, efficient handling of relatively short hauls.



WHICH HOIST is RIGHT FOR YOUR JOB?



SHEPARD NILES
Cab-Operated Hoist

Operator in cab moves loads along at high speeds—occupies best vantage point for spotting or stacking materials.

Choosing the hoist that's right for your job calls for expert advice.

Let the Shepard Niles representative in your area guide you in your choice. He specializes in through-the-air handling—knows which type of hoist will best fit your job.

SHEPARD NILES
CRANE AND HOIST CORPORATION

SHEPARD NILES CRANE and HOIST CORP.
2641 Schuyler Ave., Montour Falls, N.Y.

( ) *Please send me your latest Hoist Bulletin.*
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COMPANY _____
STREET _____
CITY _____ STATE _____

MAIL COUPON

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Even the Screws are Different in the LESTERSHIRE WOOD BARREL BOBBIN

with replaceable fibre heads

One of the reasons why Lestershire wood barrel bobbins give extremely long service under continuous hard use is that the fibre heads can be removed and replaced *without damage to barrels or heads*. This is made possible by our new patented screws.

The patented screws used to fasten the heads to the barrel are so shaped that their threads do not disturb the grain of the wood. They can be removed and put back in place many times when it is desired to change the heads for any reason, and always give maximum holding power.

Four of these "anchor thread" screws hold three times better than eight drive nails.

The barrels of *Lestershire* wood barrel Bobbins are of hard close-grain maple. They will not dent, chip, or crush.

The heads are of hard vulcanized fibre—most durable material for the purpose.

LESTERSHIRE SPOOL & MFG. CO.

Division of National Vulcanized Fibre Company

140 Baldwin Street **Johnson City, N. Y.**

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Greenville, S. C.

Odell Mill Supply Co.
Greensboro, N. C.

National Fibre Co. of Canada, Ltd.
Toronto, Ontario

the open house. From a flood of congratulatory letters and calls, they knew Hathaway's open house had been successful in several ways. It had been an interesting, well-organized, and ably handled event. It had told the people of New Bedford the mill was there to stay—and to operate profitably as an important part of New Bedford's economic well-being.

Excerpts from some of the letters said, "If more would take the time and effort to follow your footsteps . . ."

"Your open house is the most constructive thing done in New England industry . . ."

"A fine thing for the community. Too many of our citizens have only the feeblest notions of the contributions of the industries around which our community is built and on which it lives."

"We used to hear the expression 'A happy ship.' That's what went through my mind as we discussed our visit at home last evening . . ."

These were some of the comments by people of the community—a school teacher, a handbag manufacturer, a book-store operator. Then another, from a drug-store manager, tied in a package the sentiments of the people, the purpose of the open house, and its full value in strong and good community relations:

"This most recent evidence of your faith in your organization, our community, and our way of life, will be an inspiration to many within our community."

Blending Dope-Dyed Fibers

(*Continued from page 87*)

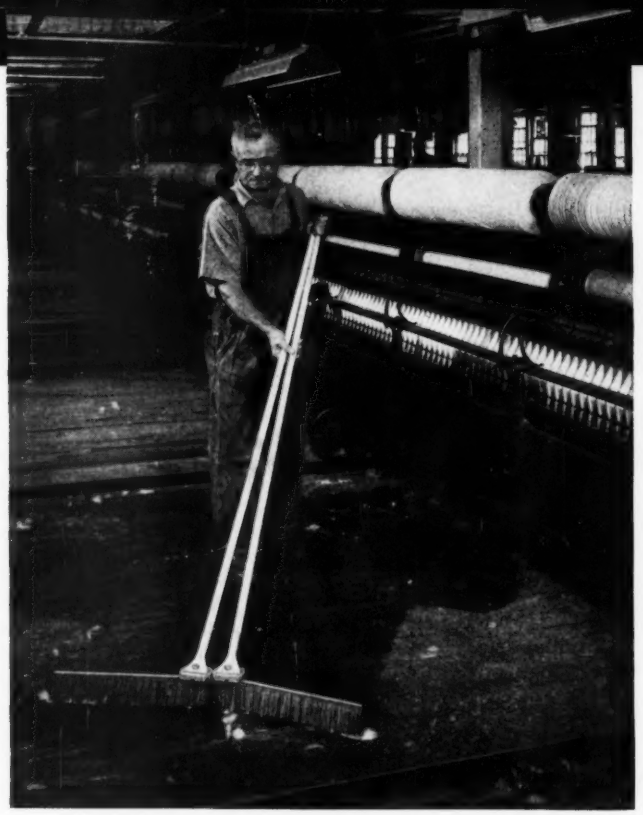
handle lengths up to 2 ins. can produce more solid colors with 1.5-den., 1⅝-in. staple or bright mixtures with 3 den., 2-in. staple. If bright or dull rayon staple is used in blends with dope-dyed fiber, the bright fibers add to the luster of the blend as a whole, and dull fibers do not blend into the background as well. In a blend using dull-rayon staple, the white fibers stand out more prominently and give a paler tint than the same amount of bright-rayon staple.

To get a range of shades, blend black staple with blues and greens, and blend brown staple with the yellows and oranges.

Sample Making Is Easy

Here is a simple procedure for making samples of dope-dyed yarn: weight out the components of the blend on a grain scale, card the mixture on a pair of hand cards, and hand spin about 4 ins. of yarn from this stock. (The twist darkens the color of the blend.) It is important to

Announcing THE FIRST GREAT ADVANCE in SWEEPING SINCE THE BROOM



You can use Blade Sweeps in pairs for sweeping open areas, as shown above, or singly for close work, as shown at right. For further information about the NEW Fullergript Blade Sweep call the Fuller Industrial Representative listed in the classified section of your telephone directory or write . . .

FULLERGRIPT BLADE SWEEP

Comparable to a Broom in Price but with 5 Times the Wear

Consider these money-saving features! A Fullergript Blade Sweep lasts 5 times as long as an ordinary broom. You use it the way it was made to be used . . . with the brush filaments perpendicular to the floor. You "plow" without breaking off the filaments or bending them out of shape. Furthermore, the densely packed brush material—palmyra, in this case, but you have a choice of fillers—is loop-anchored inside a rigid, metal channel and *cannot* come out.

You replace *only* the part that wears down — *not* the whole tool. So when the sweeping surface has worn down, just slip a new Fullergript brush strip into the clamp and you're back in business. A Fullergript strip compares favorably in price with the cost of a new broom . . . *but lasts 5 times as long.* Where can you use to best advantage the money you formerly had tied up in brooms?

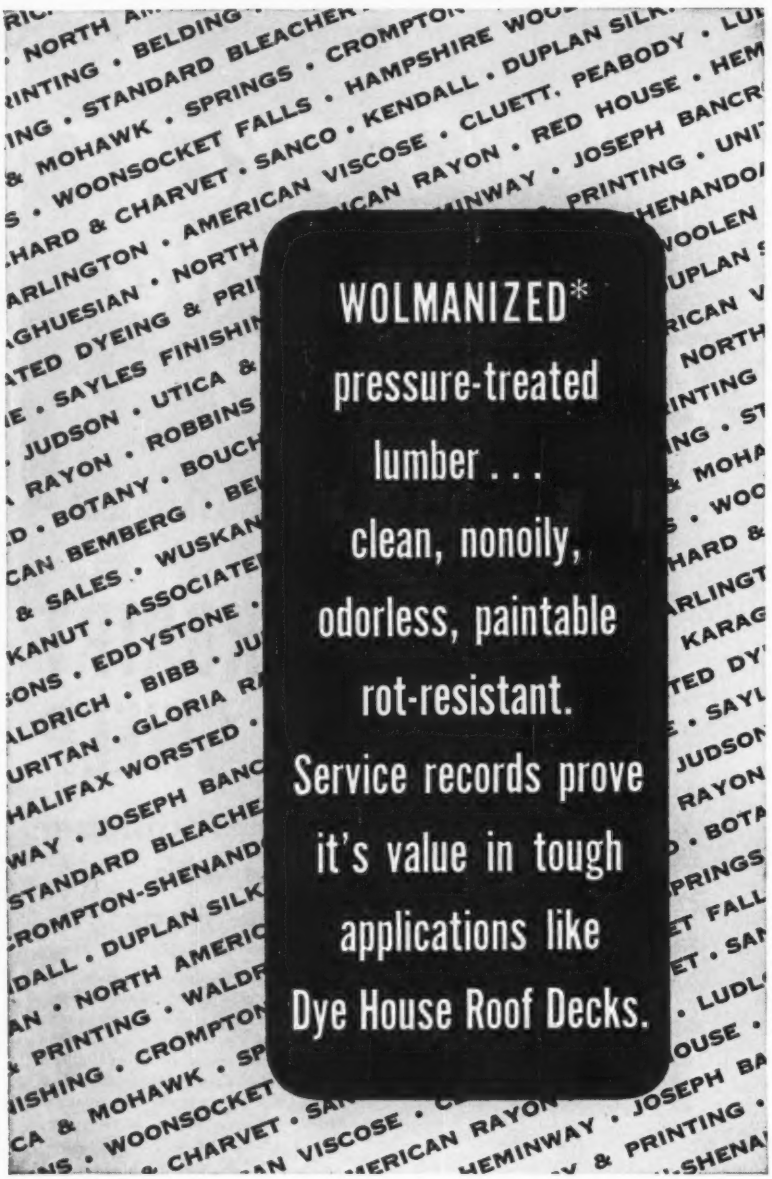
Be sure to see our display at American Textile Machinery Association Exhibition, Atlantic City, April 26-30, 1954.

INDUSTRIAL Fuller BRUSH CO. DIVISION

3594 MAIN STREET • HARTFORD 2, CONN.

Power driven brushes, Factory & Institutional cleaning tools, Waxes & Detergents

Close-up of clamping device showing how brush strip may be set off-center and/or angled.



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PRESSURE TREATED
Lumber

use the same denier that will be used in the yarn.

One-and-a-half denier, 1 5/16-in. and 3-den., 2-in. staple can be handled without difficulty on hand cards, but you will have to cut 4.5-den., 6-in. staple to a fiber length of 1½ to 2 ins. to use this method. For the worsted spinner, this hand-blending method is simpler than making a trial blend on a gill box, and it sacrifices very little in appearance. The flax spinner will also find this method convenient.

Cloth-Room Operation

(*Continued from page 80*)

A third section of the ticket is removed to provide information for clerical workers in the cloth room to make out shipping information and other records.

A Head Grader Regrades Seconds

Cloth graded as seconds by regular graders is removed from the convevor line and regraded by a head grader. She regrades the cloth on a red ticket similar to the white ones; and if it still appears to be second quality, she attaches the red ticket to the cloth. A man places the cloth in a metal bin containing a compartment for each style of cloth. The second-quality cloth remains in the bins until enough is stored to fill a shipping case; then it's shipped.

Another duty of the head grader is to check with regular graders on any questionable cloth defect. Her grading frame is at the end of one row of frames, and she is always available. To call her, regular graders turn on a red light. (There's one on every frame.)

Unusual defects are shown to Cloth-Room Overseer Lewis Stewart.

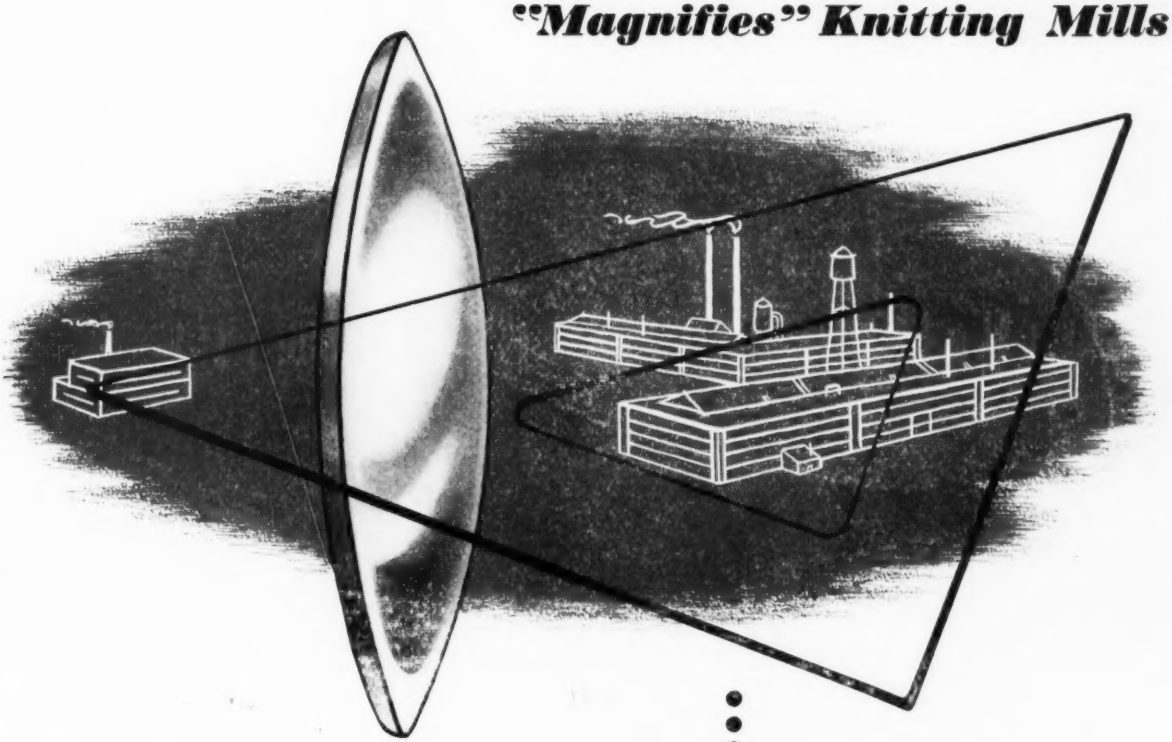
The head grader takes reports of looms making second-quality cloth to the weave-room overseer every hour. On cloth graded second quality for a continuous defect (wrong draws, dobby hooks off, shuttle marks, etc.), a report is given to the weave-room overseer immediately.

Another Special Grader Checks on Other Graders

Another special grader, Juanita Spillers, is called a rechecking grader. She rechecks both first-quality and second-quality cloth graded by each grader each day. Before she rechecks the cloth, she removes the regular grader's ticket (it is initialed for identity) and makes out a complete new one. Then she compares the two tickets to evaluate the accuracy of the grader's work. A grader is allowed a margin of one missed defect; if more

HOW SUPREME ENGINEERING

"Magnifies" Knitting Mills



Without adding one inch of actual floor space, Supreme's engineering makes knitting mills bigger in output capacity . . . bigger in production versatility . . . bigger in profit-knitting power.

How? Supreme does this by creating knitting machines that *multiply* a mill's *knitting-ability*.

Look into the modern Supreme line. In model after model you'll find multi-machine fabric versatility and production rates that "magnify" a knitting mill in its customers eyes.

You'll also see the basic construction features that assure long-lived, low-maintenance operation. These standardized features give all Supreme's a family resemblance that simplifies life for your knitter-mechanics.

Write, wire or phone today for complete information on any of the Supreme's shown on this page.

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KNITTING MACHINE CO., INC.
94-02 104th STREET, OZONE PARK 16, N. Y.
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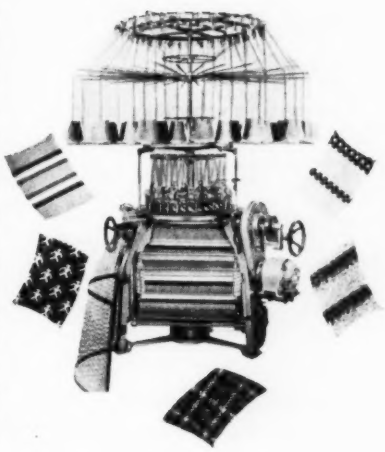


For example—Here's Model LT/SAAF "A ONE-MACHINE KNITTING MILL"— This automatic variable striper and pattern placer machine knits a tremendous variety of Terry and Jersey fabrics at terrific production rates. Switches easily from one to the other.

SK-162

 For more information, write direct or use Reader Service post card.

Flooring of Northern Hard Maple in Stinson Knitting Mills, Brooklyn, New York.
(Photo by courtesy Supreme Knitting Mach. Co., Inc.)

foot-friendly!

NORTHERN HARD MAPLE

The hard-headed common-sense of mill operators and mill designers is the big reason for the acres of "foot-friendly" Northern Hard Maple floor throughout the textile industry. For it's common-sense (and scientific studies back it up) that tells us a floor of warm, *resilient* maple is far less tiring to stand on and work on than a floor that's cold and stony-hard! Common-sense tells us a bright, tight, cheerful maple floor is easy to keep clean, easy to maintain . . . and, because "there's always a new floor underneath," it's easy to refinish. Common-sense tells us Northern Hard Maple creates no dust, catches no lint, resists dents, scuffs and splintering. Yes, Northern Hard Maple floors give you *real* savings—savings that continue through the years. Ask your architect or see Sweets' (Arch. 12 K-MA). Write for new Flooring Textbook.

savings continue through the years

MAPLE FLOORING MANUFACTURERS ASSOCIATION
Suite 592, Pure Oil Building, 35 East Wacker Drive • Chicago 1, Illinois

FLOOR WITH NORTHERN HARD MAPLE
BEECH AND BIRCH

than one defect is overlooked, the grader is shown the roll of cloth.

Other duties of the rechecking grader include: measuring the width of cloth, counting the picks per inch and the number of ends on first cuts of cloth (both tie-backs and drawn warps), checking special selvage markers to identify various styles of cloth, checking cloth for light or dark shades, and checking dyed swatches from new warps.

The width of the cloth is easily measured because each grading frame is equipped with a built-in yardstick.

Information on the construction of each style of cloth being run is stored in a filing cabinet next to the rechecking-grader's frame.

How Loom-Finished Fabrics And Records Are Handled

Loom-finished fabrics are graded by a slightly different system from that used for the regular filament- and staple-rayon cloths woven. For example, the loom-finished fabrics are graded on a white background. Ordinary warps are marked with cut marks; the special cloths do not have cut marks, and shift changes are identified with red, green, and blue cellophane tape stuck to the selvages.

Small fiber pegs are placed in holes bored in the grading frames to keep the loom-finished cloths in perfect alignment with the roll of cloth being wound to keep selvages straight and avoid wrinkles.

The collapsible cloth rollers make it possible to grade usual cloth styles without winding them around paper tubes, but paper tubes are used for the loom-finished fabrics.

Cloth-room conditions are held at 65% r. h. and 80 to 82° F. with a Carrier system, and a Brown instrument records the relative humidity.

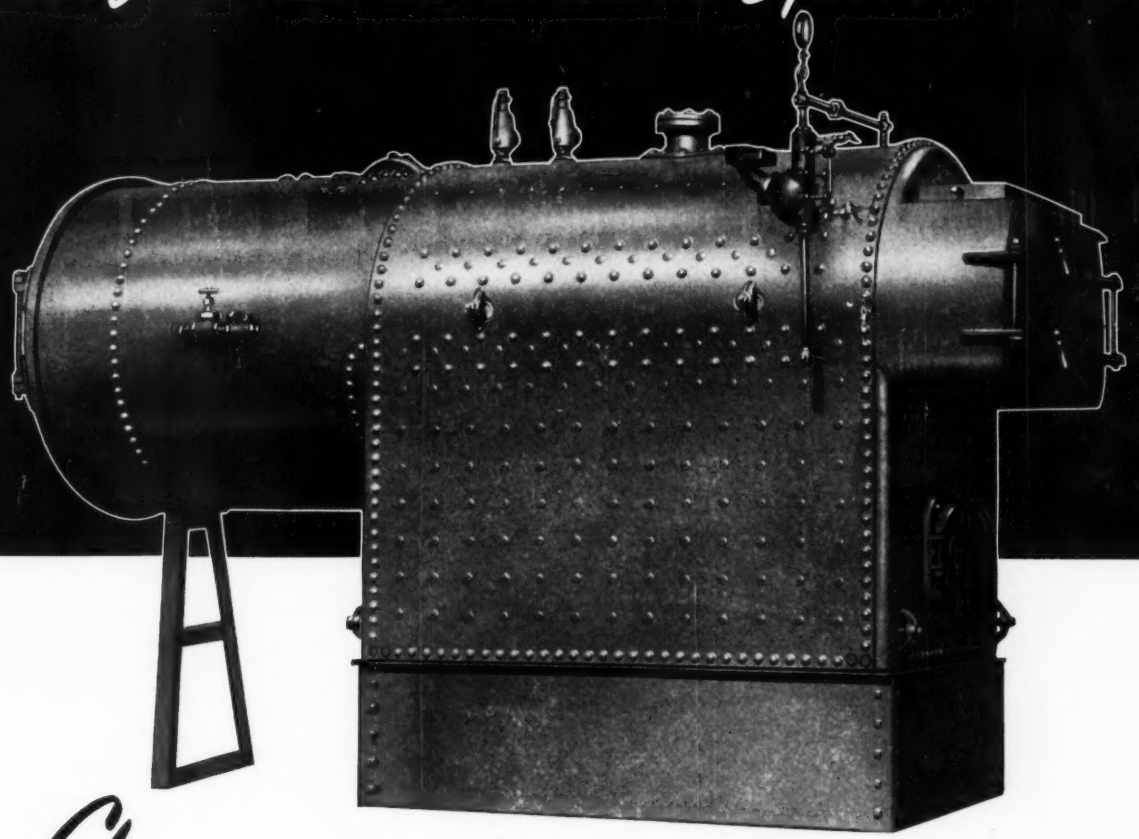
Records are kept on all types of cloth graded. A daily list is computed in the cloth-room office showing the yards graded, the yards of first-quality cloth, and the yards of second-quality cloth.

In addition, there's a breakdown of the percentage of daily seconds on each style graded. These records are given to the weave room daily. The weave room is also supplied with the percentage of seconds each week. From these records, the weave-room office personnel figure seconds percentages by shifts, second hands, loomfixers, and weavers.

The cloth-room records run for one month on a sheet and then start over.

The system for charging the number of yards of seconds per weaver in each cut of cloth makes it possible for a weaver making good cloth to receive no seconds even though other

POWER
with POWER *to Spare*



Announcing

A NEW DOUBLE PASS ALL-PURPOSE INDUSTRIAL AND HEATING BOILER

SOUTHERN MADE FOR SOUTHERN TRADE

Made in sizes from 44 H.P. to 153 H.P. S.B.I. rating with pressure to 150 lbs. Designed for coal, gas or oil firing, the New Lucey Double Pass Boiler can be furnished complete as a package unit.

This boiler is in addition to our regular line of single pass fire box boilers which we have been making since 1918.

WRITE FOR BULLETIN NO. 153 FOR COMPLETE SPECIFICATIONS

LUCEY BOILER *and* MANUFACTURING CORPORATION

CHATTANOOGA, TENNESSEE

1514 CHESTNUT ST.
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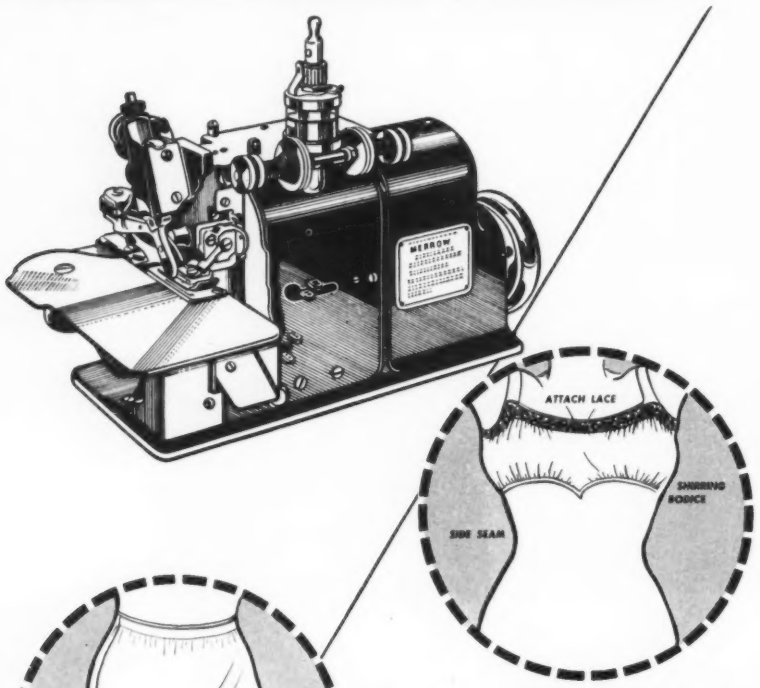
MERROW CLASS A MACHINES ELIMINATE PRODUCTION BOTTLENECKS



Because of their flexibility, "Merrows" can eliminate tie-ups in your production. The adaptability of a "Merrow" to various operations makes it useful in breaking bottlenecks.

Smooth, high speed operation guarantees maximum output. Simplicity of design, sturdy construction and ready interchangeability of parts minimize "down time".

Merrow Class A Machines are extensively used for overseaming, overedging, hemming and shirring in the manufacture of gowns and pajamas, panties, slips, infants' wear, corsets and girdles, athletic shirts and T shirts.

Why not take advantage of Merrow experience in solving your problems? We will be glad to demonstrate the work of these machines on your own garments.

TRADE MARK REG

The **MERROW** MACHINE COMPANY

ESTABLISHED 1838 INCORPORATED 1904

2803 LAUREL STREET•HARTFORD•CONN., U.S.A.

Write for free illustrated bulletins.

weavers on other shifts have several major and minor cloth defects. (See panel on page 80).

Another Cloth-Room Section Grades Cotton Cloth Only

In the same cloth-room department at Simpsonville, cotton cloths woven at Woodside Mills' Fountain Inn plant (only a few miles away) are being graded with the same assembly-line methods used on the rayon cloths, but with little other connection. Both departments are under the supervision of Lewis Stewart, records are kept for both types of cloth in the cloth-room office, and both are shipped from the same point. Otherwise, there is no connection between grading the two types of cloth.

Rolls of cotton cloth come to Simpsonville from Fountain Inn by motor truck. The cloth has no cut marks and is doffed at the looms in rolls up to 200 yds. long.

The rolls are stitched and sheared in two units similar to the rayon stitching and shearing unit. Cloth folders are located at the back of the shearing machines. The stitching is removed to separate the rolls of cloth, and the cloth folded in individual cuts.

A Veeder-Root counter is located at the folder to count the yards of cloth in each cut. As a double check, the folder operator also counts the folds or yards of cloth. He marks the style number and the number of yards of cloth in each cut on the outside so that the cloth grader will have a readily available record.

If a selvage becomes rolled in the shearing machine, the folder operator notifies the stitcher man by pressing a button that turns on a red light.

The folder operator places folded cloth on a 2-ft.-high truck for transportation to the grading table.

The Graders Don't Lift The Cuts of Cloth

Graders on cotton cloths inspect on continuous rows of flat-topped tables tilted at a 15° angle. The tops are covered with Masonite. Fluorescent lamps, 1 ft. above head level, furnish lights for grading.

Each grader is supplied by a man who trucks cloth from the folders and stacks it at her left. When a cut of cloth is graded, it is pushed aside on the table and taken away by the same man. Graders do no lifting.

Production for graders on cotton cloth is 1,200 yds. each per hour.

Slips are made out for looms making second-quality cloth, and they're sent to the Fountain Inn weave room by the truck driver who transports the cloth. In emergencies, the weave-room personnel are notified of defects by telephone.

Need small bearings that can carry heavy loads?

here's how manufacturers of materials handling equipment get them with NEEDLE BEARINGS

Leading manufacturers of lift trucks, industrial trolleys and conveyors, cranes, hoists and other types of materials handling equipment specify Torrington Needle Bearings because of their high capacity and their compactness.

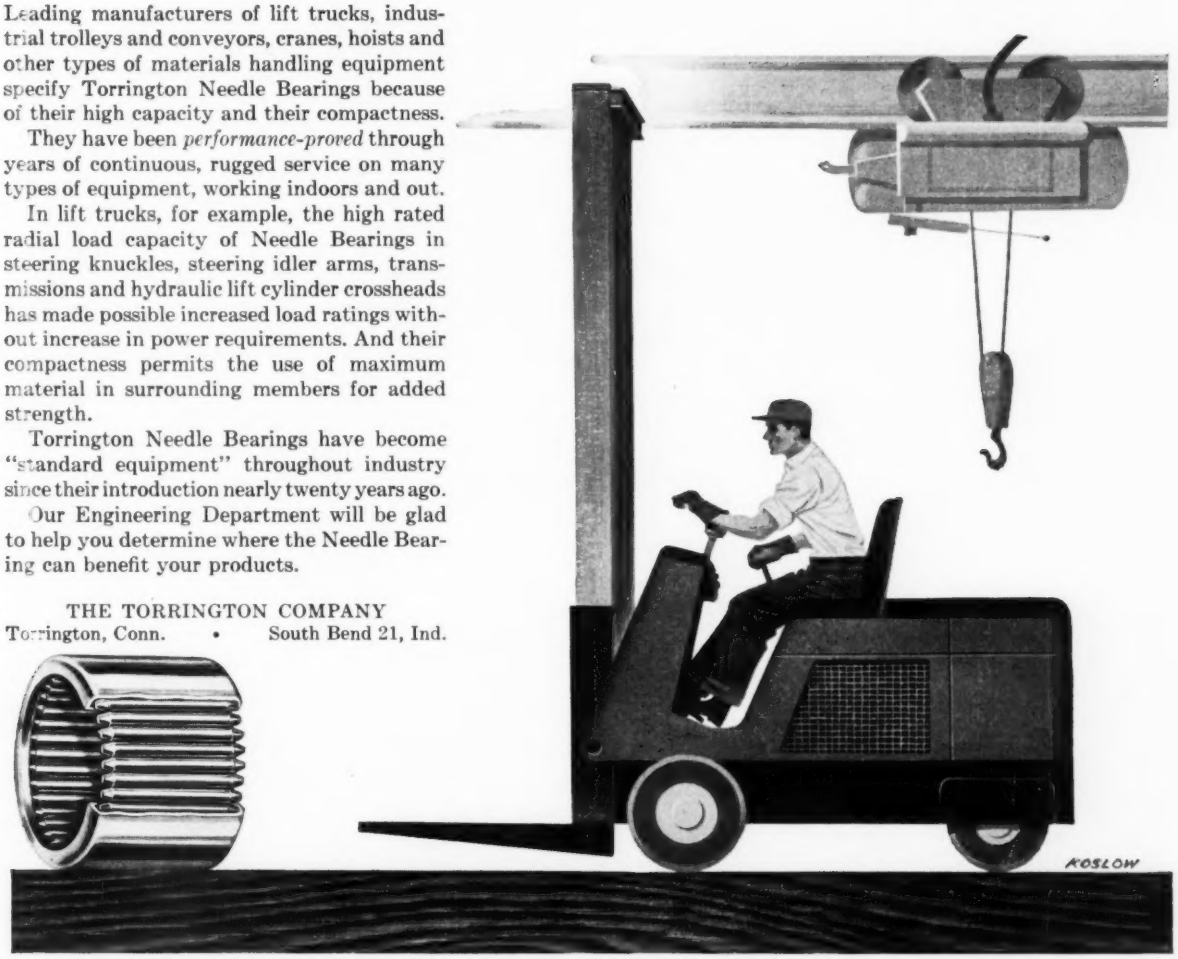
They have been *performance-proved* through years of continuous, rugged service on many types of equipment, working indoors and out.

In lift trucks, for example, the high rated radial load capacity of Needle Bearings in steering knuckles, steering idler arms, transmissions and hydraulic lift cylinder crossheads has made possible increased load ratings without increase in power requirements. And their compactness permits the use of maximum material in surrounding members for added strength.

Torrington Needle Bearings have become "standard equipment" throughout industry since their introduction nearly twenty years ago.

Our Engineering Department will be glad to help you determine where the Needle Bearing can benefit your products.

THE TORRINGTON COMPANY
Torrington, Conn. • South Bend 21, Ind.



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Needle • Spherical Roller • Tapered Roller • Cylindrical Roller • Ball • Needle Rollers

Trade-marks of leading materials handling equipment manufacturers who use Needle Bearings in their products.

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MAXWELL MANNING M&M & MOORE INC. TRADE MARK
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Longer Lasting Brightness!

Sylvania Fluorescent Lamps contain STABILIZED PHOSPHORS . . . an exclusive coating achievement enabling the lamps to provide a longer-lasting brightness now than they ever did before. This actually amounts to a "Bonus of Light" worth more than the cost of the lamps themselves. That's why only Sylvania can cover its lamps with this money back guarantee.

Let us tell you more about this latest Sylvania engineering advancement. For the complete story write Sylvania, Dept. 4L-5201 or call your Sylvania representative.

Try 24 Sylvania Fluorescent Lamps of any popular type. If, in your opinion, they don't give more light and maintain color and brightness for a longer time than any other brand, send them back with your signed Certificate of Assurance and your money will be refunded.

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In Canada: Sylvania Electric (Canada) Ltd., University Tower Bldg., St. Catherine Street, Montreal, P. Q.

1953 Cotton Crop

(Continued from page 89)

were four points above 1952. Only 1951 at 103 was stronger.

Central states' samples averaged 97 —two points higher than 1952 but four points lower than 1948.

Texas cottons produced yarns with an average strength index of 96, one point higher than 1952 but next to the lowest since 1948. The high year was 1949 at 105.

Yarn Appearance

Only Texas cottons produced yarns with a higher appearance index for 1953 than for 1952. The Texas average index of 110 was the highest for any section this year, the highest for Texas in the last six years, and as high as the best from any section in the last six years. This index of 110 is in the "good" range for yarn appearance.

Samples from the Southeastern states produced yarns with an average index of 104, five points lower than 1952 and the lowest since 1948's 100. The 104 is slightly above the "average" range.

The Central states gave yarns with an appearance index of 109, slightly lower than last year and next to the highest since 1948 to continue an upward trend for that section.

The lowest yarn-appearance index of any section was California. This state has been lowest every year since 1948. The 1953 figure of 99 was two points lower than 1952.

How To Use These Results

The results from this report can be used to compare cottons from different locations to determine whether they will meet a particular end use. Furthermore, the fiber properties of questionable samples available for a mill run or purchase may be compared with those in the report, along with the spinning qualities, to estimate the level that should be obtained.

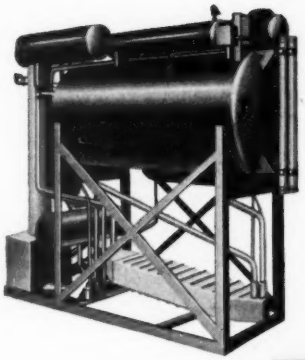
How Samples Are Taken

Cottons tested are from areas growing predominantly one variety and producing 10,000 bales or more, except in a few cases. Results are published monthly (from July to January) by the Research and Testing Div., Cotton Branch, USDA. A summary report is published after all samples have been received.

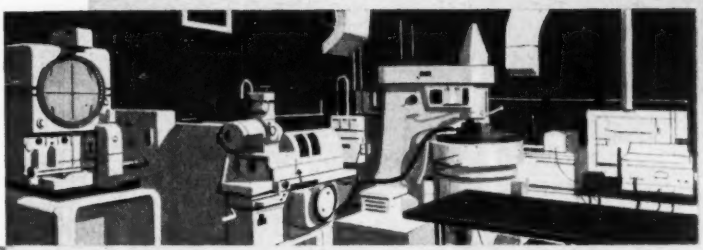
Test lots are collected at the classing offices of the Cotton Branch from Smith-Doxey classification samples of even-running grade and staple. Samples of the predominating grade and staple received at the time of the lot selection are used for the test. Each lot is represented by 20 to 30 bale samples, or 5 to 6 lbs.

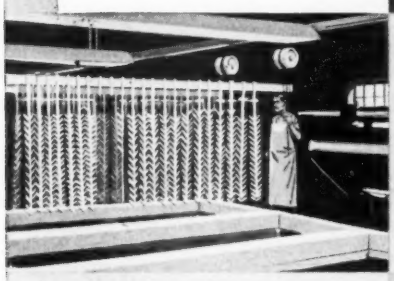
Samples were collected from 104 areas in 1948; 105 in 1949; 109 in 1950; 112 in

use WASTE HEAT to control HUMIDITY and TEMPERATURE



Servel 25-ton Water Chiller
No moving parts. Operates continuously at peak load with minimum maintenance on steam from any source.





Industrial Precooling
Use Servel Water Chillers to precool air and increase capacity and improve performance of compressors and internal combustion machines. Opportunities for varied and profitable use are practically unlimited!

Process Cooling
Continuous high efficiency and dependability makes Servel Water Chiller ideal for process cooling. Temperatures of liquids can be closely regulated and held to precision limits in manufacturing and formulating processes.

Air Conditioning
Here's economical temperature and humidity control. Water is used for refrigerant. No compressors! Units may be placed for efficient zone control. Frequently, costly duct work can be completely replaced by simple piping arrangements.

The Servel absorption principle lets you use waste heat (or steam, from any source) to chill water for air conditioning or other cooling needs.

The flexibility and operating efficiency of the Servel Water Chiller is unmatched. *No moving parts design* means quiet, vibration-free operation, low upkeep. Capacity can be reduced by 50% with corresponding power savings. Compact size and low floor loading permit single or multiple installations in most advantageous locations.

Your investment is protected by a full five-year factory warranty!

Check these advantages against *your* cooling requirements. Your Servel dealer will supply details and engineering assistance, or mail coupon today!

Send coupon for details!

Servel
the name to watch for great advances in
AIR CONDITIONING ✓ REFRIGERATION

SERVEL, INC., DEPT. TW-14, Evansville 20, Indiana

Send me specifications and full information on Servel Water Chillers.

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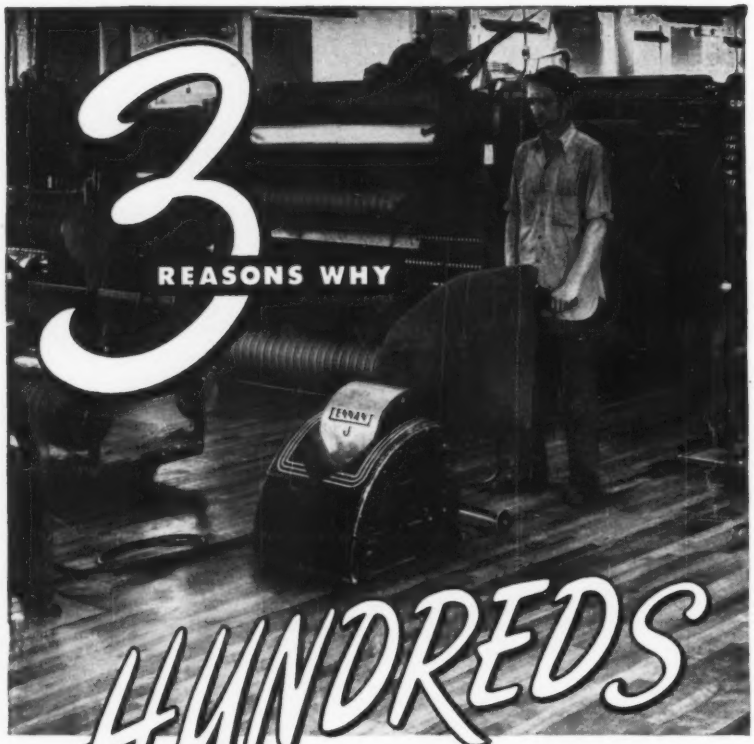

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TENNANT System
OF FLOOR MAINTENANCE

Its cost-saving performance and ease of use have established TENNANT as *THE accepted floor maintenance system of the U.S. textile industry.* This unique acceptance is due to these practical advantages . . .

1. CUTS FLOOR MAINTENANCE COSTS

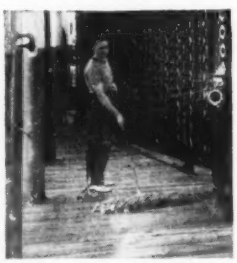
You save 4 ways—in *manhours,* by cleaning faster in one operation with 1 man; you cut *accident costs* by DRY-cleaning (no wet, slick floors). You avoid needless *floor repair costs* . . . and reduce *stock losses* from snags, splinters and soilage.

2. EASIEST TO USE: eliminates scrubbing!

Works like magic! You get rid of dark, rough, oil-soaked fibers . . . and have a smooth, bright, *hardened* floor surface that resists dirt. Stays clean longer! Ends costly, harmful scrubbing and wet-mopping.

3. FITS YOUR MILL'S SPECIFIC NEEDS

Your TENNANT System is individually selected and planned, 100% *specialized* for your mill. Assures you of best results. Personal installation and periodic inspection . . . *without charge.*



ONLY DAILY CARE needed is fast, low cost sweeping. Oil, dirt and dust do not cling to the smooth, hard surface of a **Tennantized** floor. Dirt sweeps off easily . . . Keeps your floor bright and attractive.

OFFICES IN PRINCIPAL CITIES

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Write Today!
Get helpful case histories, illustrated bulletins, etc. Learn HOW YOUR MILL CAN SAVE ON MAINTENANCE COSTS . . with the Tennant System.

FLOOR MAINTENANCE SYSTEM
Creators of the TENNANT SYSTEM OF FLOOR MAINTENANCE—Manufacturers of Equipment & Materials for MAINTENANCE OF FLOORS, DECKS, ROOFS, HIGHWAYS

1951; 110 in 1952; and about 112 in 1953.

How Tests Are Conducted

Fiber and spinning tests are conducted at College Station, Texas, and Clemson, S. C., on samples representing early, mid-, and late-season harvestings.

Small pinches of fiber from each bale sample in a lot are collected at the spinning laboratory and composited for fiber and soluble-sugar tests. Representative samples are also collected for Shirley Analyzer tests, and the cleaned lint is used for color measurements.

Cottons representing most staple lengths grown commercially are included in the study. Since the bulk of the cotton grown in this country now falls in the staple length range of from $1\frac{1}{32}$ to $1\frac{5}{32}$ ins., a study of the spinning qualities and fiber properties of this group gives an indication of the quality of the crop from the sections growing these lengths. This group was selected for this study because a good representation from all Cotton-Belt states falls in this length range, and because of the large bulk of this range.

The proportion of samples falling in the length range of $1\frac{1}{32}$ to $1\frac{5}{32}$ ins. was larger in 1953 than in 1952. Out of the approximately 112 samples in 1953, 79 were $1\frac{1}{32}$ to $1\frac{5}{32}$, and out of the 110 in 1952, 68 were in that length range. This condition probably indicates slightly longer staple, on the average, for the 1953 crop.

Length and length uniformity are measured by the Fibrograph, strength by Pressley test, and fineness and maturity by the Causticaire method. Only strength and fineness are considered in this report.

The lots in this study were spun into 14s to 60s carded yarns and then tested for skein strength and appearance grade.

An index of 100 for yarn strength indicates that strength is at the level expected for that staple length.

An index of 100 for yarn appearance is equivalent to a grade of C+. An index of 110 is the same as B, and 90 is the same as C.

Avondale Production Control

(*Continued from page* 101)

warped, slashed, and in the loom on schedule. Every morning he makes a complete round of the departments to make sure everything is going along all right: Do the warp men need anything? Are the warps tied? Is the slasher room holding up the tying-in department? Is the tying-in room tying the right style? Is there enough colored filling for the next 24 hrs.?

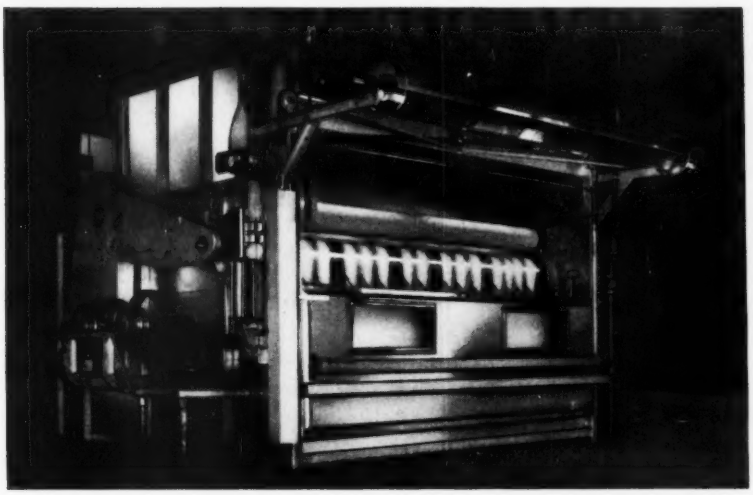
If a warp can't be located, the expediter finds it; the tying-in room is the most likely place to look for a missing warp since the human time element here makes this operation susceptible to becoming a bottleneck.

If a warp is cut out of a loom, it is given top preference to go back in; the expediter tries to get it back in a loom within 24 hrs. The warp is

retagged, retimed, and handled like a

The Fleet Line

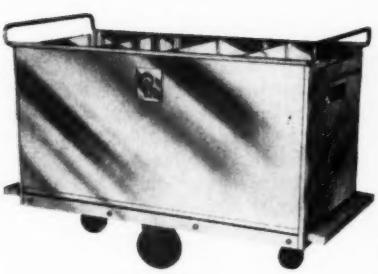
Dye & Bleach Kettle : All Stainless Steel
FOR COTTON KNITS



FEATURES

- ✓ All Stainless Steel
- ✓ Triangular Folding Reels
- ✓ Rubber Squeeze Rolls
- ✓ Pneumatic or Spring Top-Roll Pressure
- ✓ Liquor-Level Controls
- ✓ Individual Motor Drives
- ✓ Electric Knock-Off
- ✓ Exhaust Control
- ✓ Full Enclosures
- ✓ Down-Sliding Doors

One of Many Mill Installations Producing Knit Goods for the Industry.



An all S. S. Truck to service these machines. Suitable for turntable use in removing twist from fabrics.

RIGGS AND LOMBARD INC.

FOOT OF SUFFOLK STREET, LOWELL, MASS.

Agents: Paul A. Merriam Co., 1491 Broad St., Prov., R. I. • Albert R. Breen, 80 E. Jackson Blvd., Chicago 4, Ill. • Harold A. Zayotti, Jr., P. O. Box 125, Riverton, N. J. • Charles H. Dunker, 1236 So. Maple Ave., Los Angeles 15, Calif. • F. W. Warrington Co., 611 Johnston Bldg., Charlotte, N. C. • H. E. Mott Co. Limited, Brantford, Ontario, Canada

retagged, retimed, and handled like a new warp.

When the expediter first started making these checks under the production-control system, he ran across warps three months old. The warp men took the first warp available. Now Eva Jane never has warps on the floor over a week old. One reason for this turnover is the smaller number of warps in storage per style made possible by the control system.

The expediter spends about 3 hrs. a day in the mill checking on the flow of production.

During his morning round, the expediter picks up the loom tickets and stubs from the boxes in the weave room and takes them back to the control office. He matches the old tickets with their stubs and puts up the new stubs. While he is doing this, he keeps a record on a pad by loom type, fabric style, and fabric pattern (the information carried on the loom-start stubs).

From this pad, he makes a daily loom report by style and pattern for each loom type. As the number of looms on a style changes, the loom tickets and stubs reflect this change and the change is reported in the daily loom report. This loom report is not listed by mill order; its function is to show whether or not the over-all production schedules are being met by the mill-order control system.

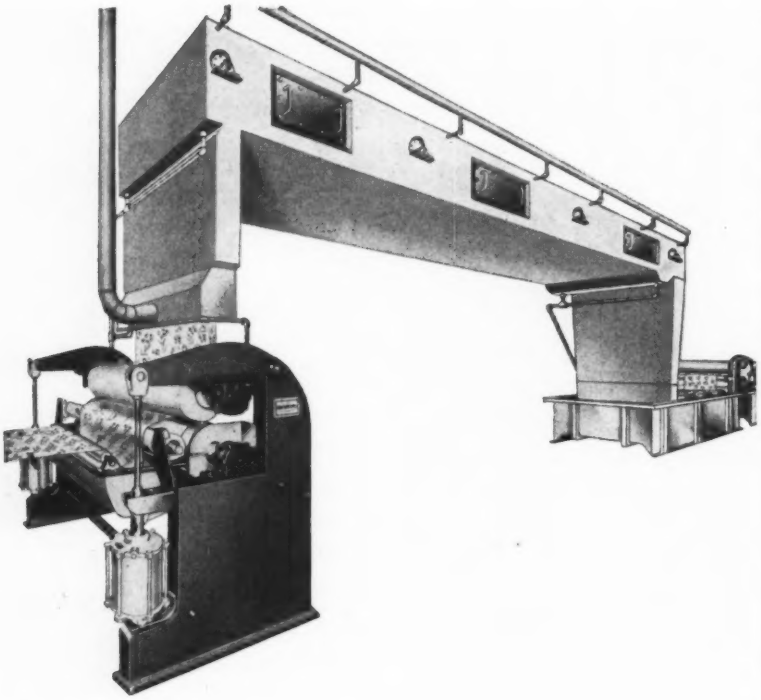
Also, while the expediter is working the board, he keeps a record of the tickets from the slasher room so he can make out the daily warp report.

Production Control Is Followed Up in Finishing

Another expediter keeps up with the cloth as it goes from the weave room to the cloth room; so the production-control department knows when each mill order is completed. After each style is assembled, the rolls of doffed cloth are sewed together on the brusher. The brusher is equipped with a yardage counter, and the brusher operator keeps a record of the yardage on sheets provided by the production-control department. These sheets show the direct yardage from the counters, the loom type, the style number, and the mill-order number; so these sheets provide an exact check on each mill order.

One of the master copies of the mill order is used as a production score card. The estimated production is recorded from the loom projection chart; then the actual production as shown by the sheets from the brusher is recorded next to the estimated production.

The roll made on the brusher is tagged and weighed, and a record is kept of the tag numbers on sheets;



A new development in vat ageing a TOWER FLASH AGER—

Makes it possible for you to age *vat prints in range* with open-width washing at speeds far above conventional agers. This New Tower Unit makes it possible for Chemical Padding, Flash Ageing, and Open-Width Washing to become one continuous process. You could also include a dryer in this range. These Tower Flash Agers *maintain excellent color values* even when operating at high speeds and their careful design prevents water spotting. Savings in steam consumption are considerable.

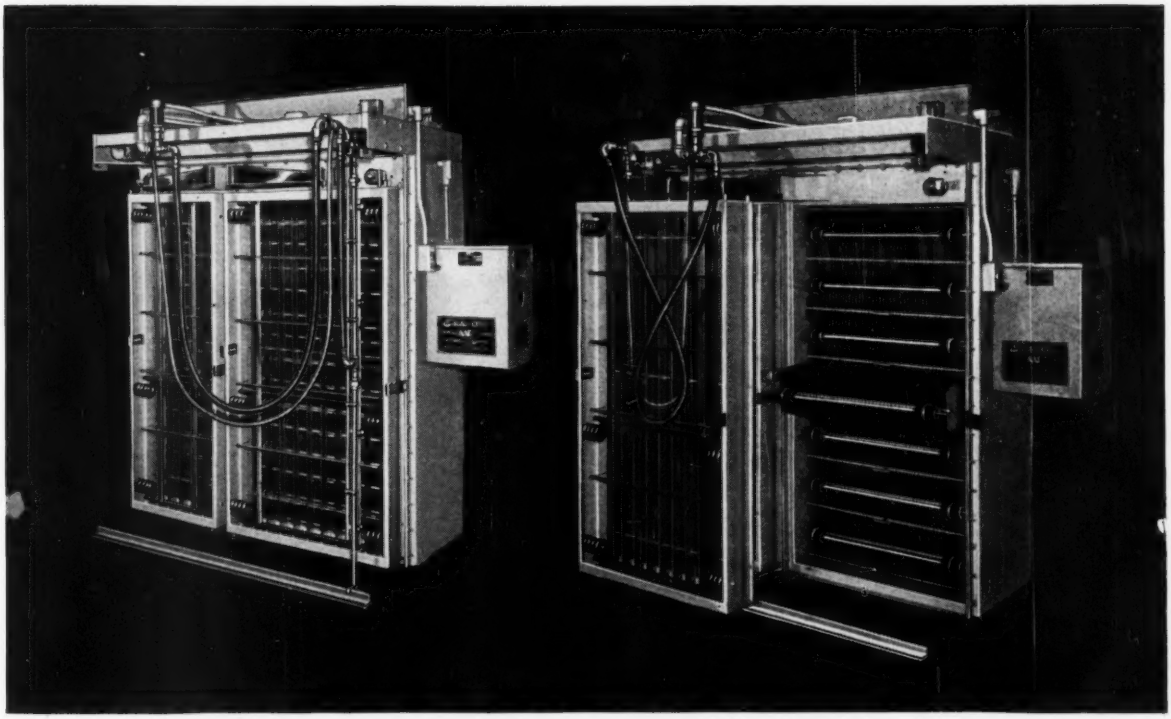
A Tower Flash Ager is custom built to suit your situation — horizontally to utilize overhead space, keeping floors clear, or it can be adapted vertically when height is available. In most cases you needn't relocate your present washer. A Tower engineer will be glad to discuss Flash Ageing with you — at no obligation, of course.

TOWER IRON WORKS

50 BORDEN STREET, PROVIDENCE 3, RHODE ISLAND

TEXTILE DIVISION

For more information, write direct or use Reader Service post card.



The new Type "H" Washer incorporated as an integral part of an ELECTRO-CELL precipitator. Spray nozzles for both the washing and collector plate coating operations travel on an overhead trackway which keeps them operating freely. The vertical header carrying these spray nozzles is rotated at each end of the travel to provide the necessary 5-degree lead to assure both thorough cleaning of the plates and even application of adhesive. RIGHT: Shows how the hinged ionizers can be opened freely to permit removal or inspection of plate cells.

ANNOUNCING THE **NEW** ELECTRO-CELL TYPE "H" WASHER
with push-button control

Score another time-and-money-saving *first* for AAF! It's the new Type "H" Washer on the famous ELECTRO-CELL precipitator which provides push-button control of the complete cleaning operations—washing the collector plates, then recoating with adhesive.

Fully automatic, the spray header moves back and forth across the face of the removable plate cells, washing away the accumulated dirt and dust. Then an adhesive coating is applied to the clean collector plates through another set of spray nozzles, mounted on the traveling header, entirely separate from the water supply.

Another exclusive feature of the new Type "H" Washer is the positioning of the spray-heads. These are automatically adjusted to always point at a 5-degree angle in the direction the spray-heads are traveling. This insures both a thorough washing action and even application of adhesive over the entire depth and each side of each individual plate.

The water used by the sprayer is controlled by a solenoid valve connected with spray-head motor drive and is synchronized with the traveling spray heads. A small motor-driven pump supplies the adhesive to the coating nozzles as they move across the face of the precipitator.

Dust, soot and even smoke are all "fair game" for the famous ELECTRO-CELL electronic precipitator. Now, with the addition of the Type "H" Washer, its maintenance is mechanized for even more efficient and economical operation.

Write today for technical data and descriptive information on this latest AAF achievement—another example of how AAF "goes all out" to help you solve your air cleaning problems.

expect the best from . . . . .

American Air Filter
COMPANY, INC.

304 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q.

AAF

Nearly 4000 TYPES of CASTERS & WHEELS
Quality that saves you money
A SAVING AT EVERY TURN
Pre-tested for Performance
DARNELL
Casters & Wheels
Always SWIVEL and ROLL
Darnell Casters and Wheels start cutting costs from the very first day of installation. Easy rolling and swivelling increase employee efficiency, save floors and help add to production.
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then these sheets are sent to the production-control department.

At the finishing machines, the rolls are taken in sequence by tag numbers, and the tags go to the production-control department as the rolls are finish graded. When the production-control department receives the tags, the sheets from the cloth room are stamped with the date the tags are returned from the finishing room. If a tag number is left unstamped, the production-control department knows that the roll has been "set back"; the finishing-machine operator probably took the closest roll instead of the lowest number. When a tag doesn't return to the production-control office on schedule, the expediter goes out on a scouting mission.

Finally, at the ticking cutter or finish grader, the cloth roll is cut down by pattern. The roll ticket on which the burler operator has made a record of the yardage by pattern and style (pattern yardage is recorded on the back of a tag and the total yardage for the style is recorded on the front) helps to cut down on short lengths. After finish grading, the tags are put in a box, and a production-control man picks them up. This yardage record gives a final check on each roll of cloth.

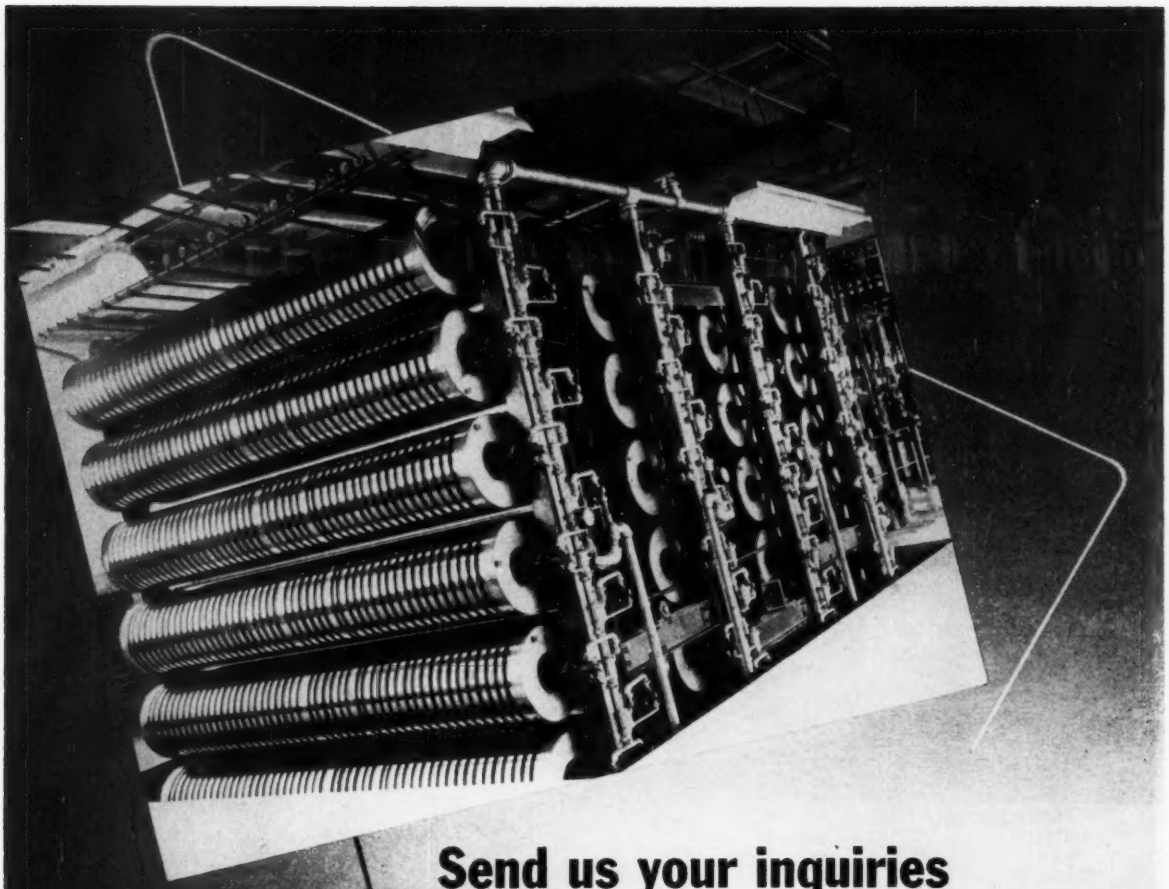
If the production-control staff has been on the ball, the cloth arrives in the shipping department on schedule. Another expediter from the control staff makes sure the shipments get out in time to meet the delivery date.

Sales Position Determines Long-Range Planning Decisions

Once a month, clerks in the production-control office prepare an available-to-sell report. From the loom projection chart, the scheduled production for at least four months into the future is available, and this production is plotted on a chart. Against these figures, present sales are plotted. The differences between the figures give the available-to-sell position. This report is sent to the central planning office.

On a production-planning chart, the available-to-sell figures are plotted against a sales forecast prepared by Southeastern Cottons. From these figures, the planning department arrives at an over-all sales position. Scheduling decisions are based on this over-all sales position.

If production on a particular style looks short, changes in the production schedule are called for; so the planning department issues a loom-change notice. The loom-change notice tells the production-control department what changes to make and why the changes are necessary. This loom-change notice is posted in the mill



Send us your inquiries on Stainless Steel Equipment

Shown above is a set of warp drying cylinders consisting of four stacks . . . eleven cans per stack . . . produced in our new and modern stainless steel plant. These stainless steel cylinders are 23 inches in diameter with 144-inch face.

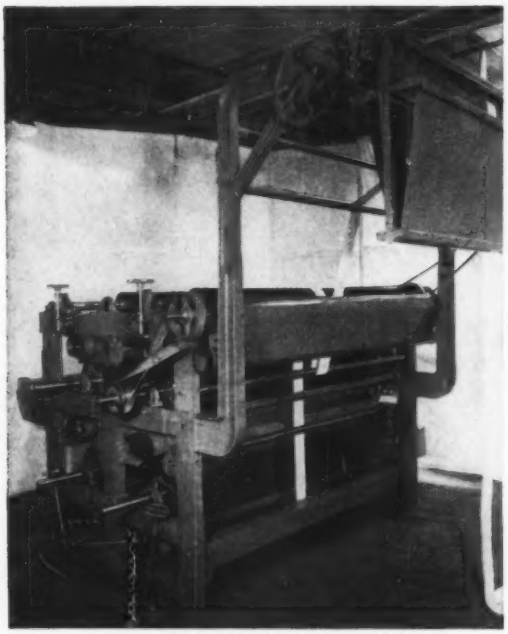
Let us have your inquiries on stainless steel cylinders, cooking kettles, storage kettles, stainless steel boxes, and cloth drying ranges.

THE LEADER COCKER AROUND THE WORLD

Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

YOUR PROBLEM OF CORRECT AND EFFICIENT BRUSHING OF ANY FABRIC SOLVED BY ONE OF THESE MACHINES



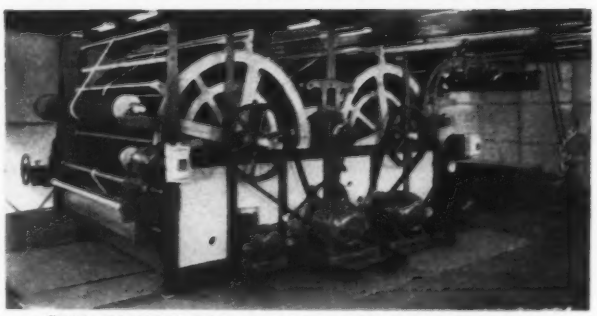
FOUR CYLINDER EIGHT CONTACT
SIX TO TEN SLATS EACH CYLINDER

- PATENTED CLEARING-OUT CYLINDERS VIZ SAND & NYLON LAGS MIXED.
- VAPOR STEAM BOX TO AID SOFTENING OF SYNTHETICS.
- NYLON SET CYLINDERS FOR WET OR DRY BRUSHING.
- ANY NUMBER OF CYLINDERS IN TANDEM.

- PATENTED "ON AND OFF" CLOTH APPLICATION TO PREDETERMINED SETTING WHEN STARTING AND STOPPING WILL ELIMINATE STREAKS AND UNEVEN BRUSHING.
- VARIABLE SPEEDS TO CLOTH FEED OPTIONAL

WANT GREATER PRODUCTIONS?
LOOK AT THIS - 60" DIAMETER CYLINDERS.

- RANGE FINISHING
- AUTOMATIC APPLICATIONS OF CLOTH TO CYLINDERS FOR START AND STOP.
- SEPARATE MOTOR DRIVES PERMIT EASE TO CHANGE FROM DOUBLE TO SINGLE ACTING.



TWO CYLINDER TEN CONTACT—STEAM OR SAND BRUSH
WITH FORTY SLATS PER CYLINDER

TEXTILE MACHINERY AMERICAN EXHIBITION ATLANTIC CITY APRIL 26-30 1954 ASSOCIATION

PARKS & WOOLSON MACHINE CO.
SPRINGFIELD, VERMONT

books the same way a mill order is posted, and the loom projection chart changed to conform to the revised schedule.

Reducing Hosiery Seconds

(*Continued from page 127*)

cones of similar density are collected by the knitter for use on the same head.

Trough Solution Is Mixed Thoroughly

To insure a thorough mixing of the trough solution, a tank has been constructed to hold 150 gals. of softened water taken from the dyehouse supply, 3 qts. of Kalpinol L, and 1½ pts. of antimildew solution. The solution is agitated by a pump at the bottom of the tank. A distribution container on wheels is filled from the faucet in the tank.

The solution container on the knitting machine is filled from the distributor by a hand-operated pump. Fifteen-denier yarns are run through an oil tube containing Scholler Lubitrol. Uniformity of threading for each head is constantly checked to prevent unequal tension that produces variations in stitch length.

Air Is Filtered and Conditioned

Cleaned air kept at a uniform 52% r.h. and 83° F. plays a big part in the production of high-quality hosiery at Shannon. Air is constantly drawn from the knitting room, mixed with outside air, and filtered.

A small room separated from the knitting room by a grill has another grill on the outside wall. Air is drawn through a filter unit containing 35 filter screens. All filters are changed every five weeks. To provide a steady supply of filtered air, one horizontal bank of filters is changed every week.

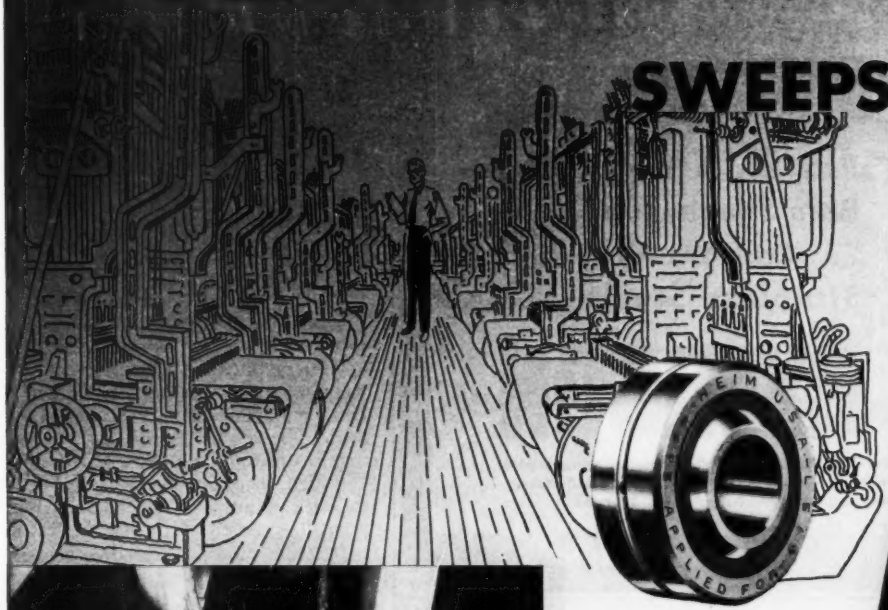
A Westinghouse 100-ton compressor unit is used to supply an air-refrigerator unit through which the filtered air passes. After being heated to 83° F., the air is conditioned and delivered to the knitting room. Temperature and humidity are controlled by a Taylor wet-and-dry-bulb recording unit that is regularly checked by the quality-control engineer. A smaller unit takes care of the seaming room.

Handling Was Reduced

Handling rods are made in the mill shop from stainless-steel tubes with rectangular flanges welded onto each end. Six wire double hooks are welded to the rods to hold the production of one shift. The knitter uses looper clips from seamless hose to keep each dozen hose separate. The looper clip is stretched and passed around the

HEIM *Unibal*

SWEEPSTICK



The Heim Unibal Spherical Bearing, which is pressed into a rubber-bonded fabric sweepstick, is the real reason why the Heim Sweepstick delivers such smooth, trouble-free pick action. There is just no possibility for the stud hole to enlarge and cause trouble. The bearing is self-aligning and long wearing.
Put the Heim Sweepstick to work on your looms now and get set for longer, trouble-free operation with no "down time" due to sweepstick failure.

Write for bulletin and prices.

THE HEIM COMPANY
FAIRFIELD, CONNECTICUT

STEEL

Every Kind

OUR STOCK OF CERTIFIED QUALITY STEEL ARE LARGE AND BECOMING MORE COMPLETE. QUICK, DEPENDABLE SERVICE IS ASSURED.

Plates, Structurals, Bars, Sheets, Tubes, etc. . . . Carbon, Alloy and Stainless Steels . . . .

RYERSON

Joseph T. Ryerson & Son, Inc. Plants: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco, Seattle, Spokane.

OVER 100 YEARS KNOW HOW

IT'S PARKS FOR SPOOLS

Over 100 years manufacturing spools and bobbins. Jack, dresser, mule, card and condenser spools with fibre, or wooden heads. Also aluminum barrels.

FOR COTTON	FOR WORSTED	SPOOLS FOR	WARP BEAMS	PLASTIC YARN
Warper and Twister Spools	Roving, Twister, Speeder and Drawing Spools	Carpet, Tire Cord, Cordage, and Tape Mills	for Narrow Fabric	SHIPPING SPOOLS

Spools Equipped with Anderson Rim or Boynton Shields Up to 6" Head Diameter If Desired. Also with Dixon Drivers or Brass Bushings.

M. H. **PARKS** COMPANY

Est. 1851 WINCHENDON, MASS.

dozen bundle. The free end of the loop is passed through the other end of the loop and hung on the hook.

An aluminum truck made in the mill shop takes care of the production from one shift. Two sets of rails on the truck are just far enough apart to hold the rod flanges. To set the stitch and reduce picks and pulled threads, all goods are placed in a presetting cabinet subjected to a dry-bulb temperature of 210° F. for 40 mins. and a wet-bulb temperature of 185° F. for 20 mins.

Length Variations Are Checked

Three lengths are knitted at Shannon—short, medium, and long—and the lengths are controlled to ± 1 in. A length test is done on a stocking from each knitting head every week. Variations in knitting are determined between points by measuring the length and not by counting the courses.

The Premier selvage tester is used to determine whether knitting-machine adjustments are within standards. The selvage at the toe narrowings is run onto the fixed points, and the high splice is run onto the lower movable points (called the indicator points). A lever releases the indicator points, and readings are taken for the heel length. The first leg narrowings are then clamped at the top, and the shadow welt is run onto the indicator points. The arms are independently controlled, and variations in selvage lengths are read in inches on the scales. The figures from the tests are plotted on a chart that is checked by the fixer.

The test lots are supplied with tickets different in color from those on normal batches. Results of the length tests are sent to the preboarders, where the preboarder writes her comments on the form.

Reports Show Trend

The final inspector measures the test lots on a time-work basis and plots the finished measurements on the chart. This chart is made available to the knitting-machine fixer for immediate action. The findings on the test-lot chart are entered on a weekly control chart. This chart, which shows the finished length of all test stockings from each machine, indicates the necessity for major machine adjustments. The chart also indicates a week-to-week variation.

In addition to this weekly test report, lengths of all finished goods are tabulated by the final pairer and entered on a report that is examined quarterly for general trends of length control and long-term deviations from standard.

News about

B. F. Goodrich Chemical *raw materials*

SEE WHAT GEON LATEX CAN DO

...to improve cotton and rayon products

GEON Polyvinyl latex is used successfully to improve or develop more saleable cotton and rayon products. The list shown here suggests some of the applications for this versatile material.

We'll gladly send you a new booklet which gives more details. And, we'll help you with technical information, and the selection of the Geon latex best suited to your requirements. For the new booklet, or information, please write Dept. GU-1, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

USE	FUNCTION
cotton	*filler to provide stiffness.*
cotton • rayon	*binder for pigment coloring and printing.*
cotton	*carrier for specialty active agents such as fungicides and flame proofing chemicals.*
cotton • rayon	*binder for non-woven fabrics.*

B. F. GOODRICH CHEMICAL COMPANY A Division of The B. F. Goodrich Company

NEW!

Compact, hermetically sealed

AGASTAT
trademark
TIME DELAY RELAYS

2⅛" square, 4" high. Weighs 1.2 lbs.

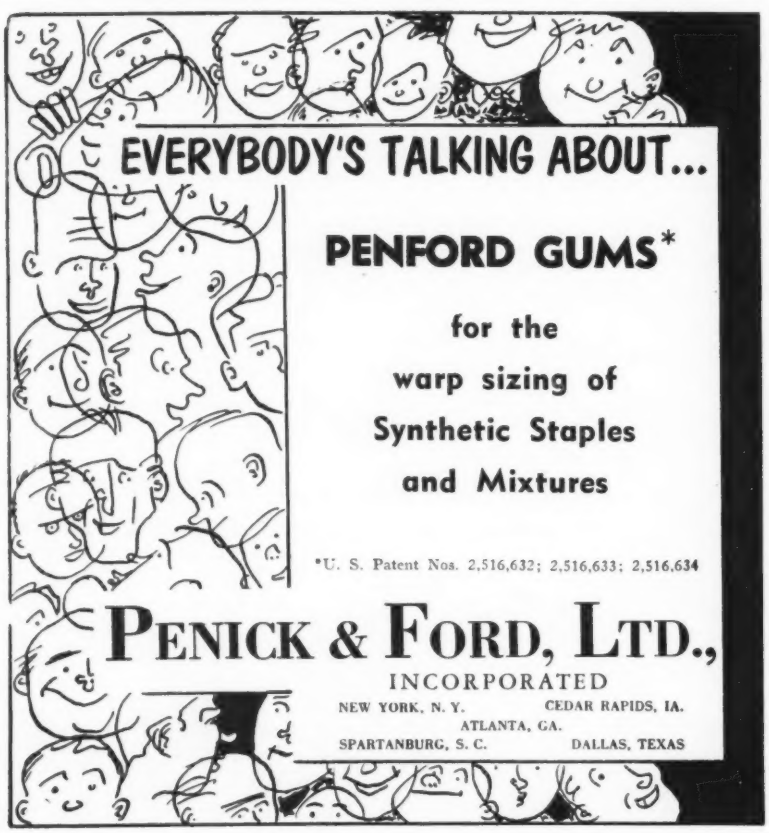
The SF AGASTAT is a solenoid operated, pneumatically-controlled time delay relay. It is hermetically sealed in an enclosure only 2⅛ inches square by 4 inches high. It weighs only 1.2 pounds.

Originally developed for aircraft use, the SF is ideal wherever control devices must operate in wet, corrosive, dusty or explosive atmospheres, and for applications involving shock, vibration or acceleration. It is not affected by freezing temperatures. Time delay range from approximately 30 milliseconds to more than one minute. Completely adjustable throughout this range.

Write for details and application engineering assistance.
Address Dept. A13-116

AGA DIVISION

Elastic Stop Nut Corporation of America
1027 Newark Avenue, Elizabeth, New Jersey
Pioneers in pneumatic timing.



Insulated Piping System

(*Continued from page 121*)

tween 350° F. and 550° F., 2½-in. insulation was applied.

A combination insulation was used on the flues, ducts, and fan housing where temperatures ran above 550° F. Following an inner layer of 1-in. diatomaceous silica, an outer layer of 1½ in. 85%-magnesia insulation was applied, the joints of the two layers being staggered.

Before the blocks were applied to the flues and duct work, 6x6x¼-in. road mesh was welded to 1½-in. spacers on the ducts to act as a base for the insulation. With this road mesh, the insulation clears the stiffening ribs and angle irons and presents a smoothly finished surface.

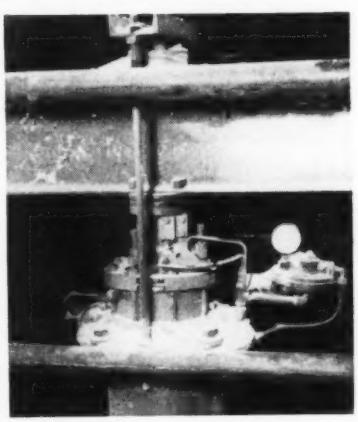
Flanges, valves, and fittings in all the lines except the feed-water and condensate lines were insulated. The flanges were first tested for pressure tightness. Block 85%-magnesia insulation and asbestos cement were used for 4-in. and larger-size pipes. On smaller pipes, preformed insulation is impractical; so asbestos hard-finish cement was troweled on the same total thickness as the adjacent pipes.

Risk of damage to the pipe insulation during future maintenance work was kept to a minimum by tapering off the insulation short of the flanges.

Textile Equipment News

(*Continued from page 146*)

Weighing Scale Uses Pneumatic Control

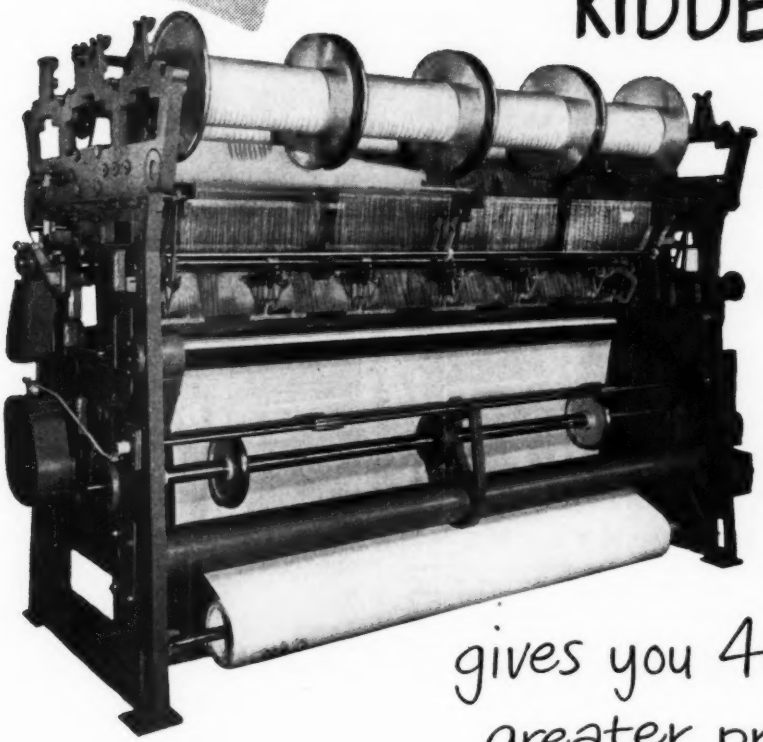


PNEUMATIC TRANSMITTER is the heart of the weighing scale. The signal put out by this transmitter controls a pressure gauge calibrated in weight units.

A platform weighing scale for controlling the flow of batch mixes or continuous processes has been devel-

For more information, write direct or use Reader Service post card.

here's the NEW Model "E" KIDDE KNITTER



gives you 40 to 50% greater production on tulle, shoe fabrics, elastic power net, etc.

Production speeds up to 500 courses with 2 guide bars . . . up to 400 courses with 4 guide bars can be maintained 24 hours a day with the new Model E Kidde Knitter. A completely new machine, the Model E is equipped with high speed cams, totally enclosed and running in oil . . . double the usual number of guide bar rocker cams . . . pattern wheels or chain drum . . . quick stop . . . and practically non-breakable needles—all features never found in a Raschel machine before. Investigate how this machine can slash your knitting costs! Write for full information.

The word "Kidde" is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

KIDDE MANUFACTURING CO., INC. • BLOOMFIELD, NEW JERSEY

Kidde Knitter

Enduring Top of Stainless Steel
Famous Sanitary 2-Stream Projector
2 important features
to promote sanitation in your plant
SEE OUR CATALOG IN SWEET'S
F-30

Yes, in one modern cooler you get the two important features that mean so much in trouble-free maintenance in any plant!

Enduring Stainless Steel Top—easy to maintain, sanitary and wear-resisting, clean.

Two-stream Halsey Taylor projector—drinking mound at uniform height regardless of pressure variation, contamination-proof, ever hygienic!

THE HALSEY W. TAYLOR CO., WARREN, OHIO

Halsey Taylor

COOLER FOUNDATIONS

MICROMETRIC **products**

For Quality and Uniformity

Comb and Gill Box Aprons
French Rub Aprons
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Exclusive Manufacturers of Leather Textile Specialties
"For Those Who Want the Best"

Finest selection of hides available . . . choice of tannages . . . Thickness gauged to meet the most exacting requirements . . . excessive stretch removed . . . flexible waterproof splices . . .

As specialists in Drafting Aprons for the Worsted System, our workmen are experienced in selection and matching of hide areas to give "balance" and long life.

A trial order will please you with our service.

The HAY Line TEXTILE LEATHERS

JAMES E. HAY LEATHER CO., INC.

244 SMITH STREET • LOWELL, MASS.

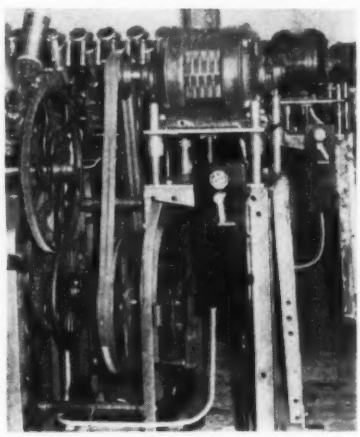
oped by Weighing Components, Inc., 64 Fulmor Road, Hatboro, Pa. The scale indications are within 0.25% of the total range in accuracy, and reproducibility is better than one part in 3,000.

A clean air supply at a minimum of 50 psi. is necessary to operate the scale. The heart of the scale is a pneumatic transmitter, which translates the variable weight into an output signal. This signal controls a pressure gauge that is calibrated in weight units. The platform weight is counterbalanced by an air-loaded tare-weight chamber; so only net weight is measured. The mechanism is said to be unaffected by vibrations.

The platform and frame are constructed of steel.

Circle T-21 on Reader-Service Card

Spinning-Frame Motor Base Has 6-In. Adjustment



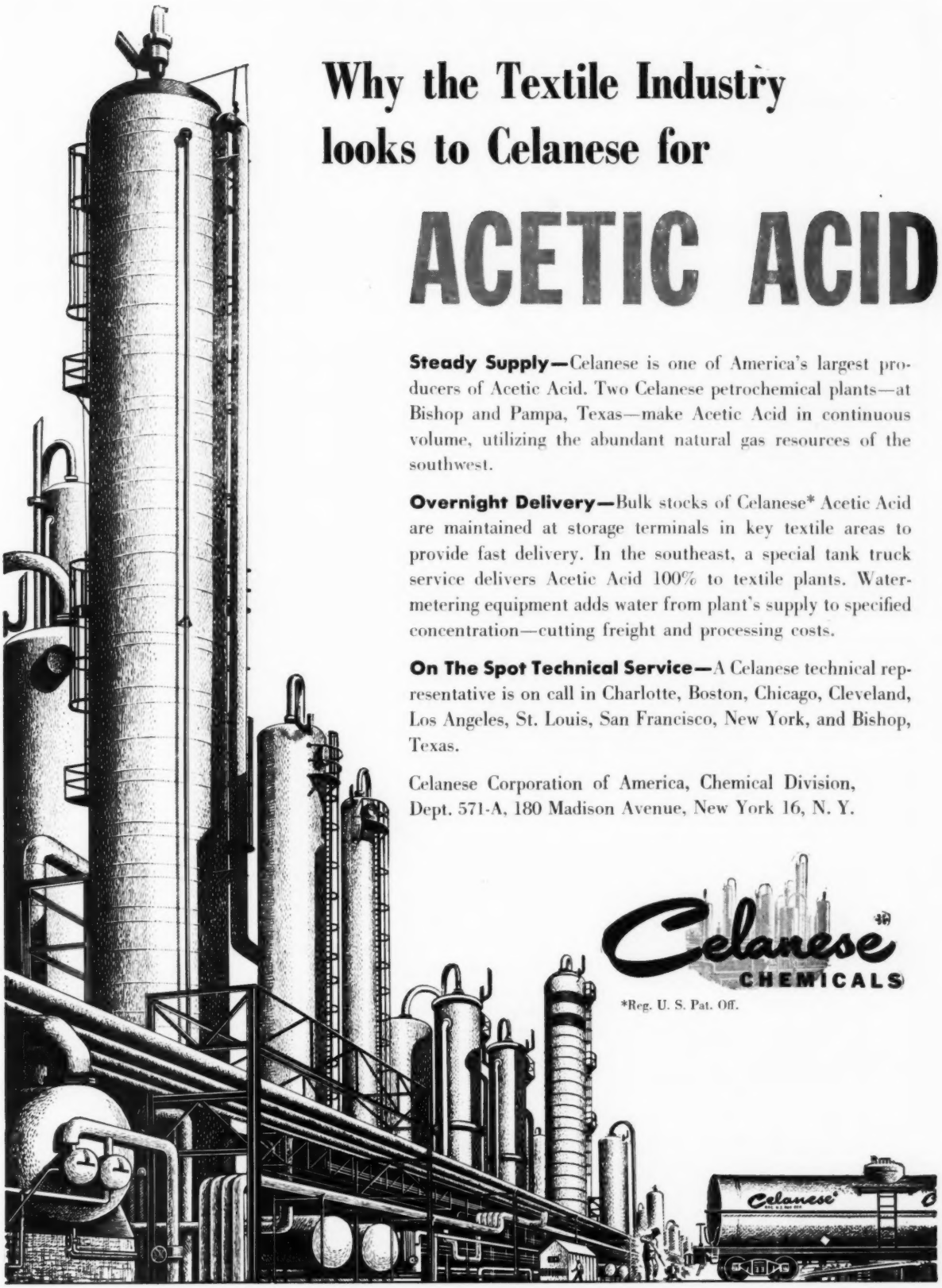
VERTICAL MOTOR BASE for spinning-frame drive provides a 6-in. vertical adjustment. It will accommodate a 284-frame size electric motor (7½ hp., 1,800 rpm.; 5 hp., 1,200 rpm.; 3 hp., 900 rpm.), and it can be used with a spring-loaded variable-speed motor pulley. The motor pulley can be rapidly changed. Quintin J. Kearney, 220 Congress Ave., Lansdowne, Pa., recently put the motor base in mass production.

Circle T-22 on Reader-Service Card

Adjustable V-Belts for D and E Drives

V-BELT is built up of sections of canvas duck joined together by studs, washers, and T-screws. Applications are air compressors, fans, and blowers.

New adjustable V-belts for D and E drives are in production at Manheim Mfg. & Belting Co., Manheim, Pa. The Veelos TD and TE link V-belts are made of links of treated high-



Why the Textile Industry looks to Celanese for

ACETIC ACID

Steady Supply—Celanese is one of America's largest producers of Acetic Acid. Two Celanese petrochemical plants—at Bishop and Pampa, Texas—make Acetic Acid in continuous volume, utilizing the abundant natural gas resources of the southwest.

Overnight Delivery—Bulk stocks of Celanese* Acetic Acid are maintained at storage terminals in key textile areas to provide fast delivery. In the southeast, a special tank truck service delivers Acetic Acid 100% to textile plants. Water-metering equipment adds water from plant's supply to specified concentration—cutting freight and processing costs.

On The Spot Technical Service—A Celanese technical representative is on call in Charlotte, Boston, Chicago, Cleveland, Los Angeles, St. Louis, San Francisco, New York, and Bishop, Texas.

Celanese Corporation of America, Chemical Division,
Dept. 571-A, 180 Madison Avenue, New York 16, N. Y.

Celanese®
CHEMICALS

*Reg. U. S. Pat. Off.

THE YARNS YOU BUY GO INTO THE CLOTH

. . . not into waste!

TOMPKINS D-2

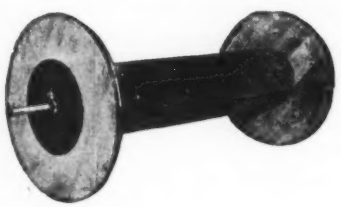
DOUBLE HEAD
SPRING NEEDLE
KNITTING MACHINE

SEE FOR YOURSELF . . . let us show you the Tompkins D-2 in production on whatever yarn or fabric you wish. Want to see samples of finished material? We'll knit up any material you specify — just send us the yarn!

OTHER TOMPKINS MACHINES

BEEF BAG KNITTER · HOCKEY CAP KNITTER · MULTIPLE FEED KNITTER

TOMPKINS BROS. CO. • Syracuse 4, N. Y.



SHELL ROLLS
BLEACHING ROLLS
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WHIP ROLLS
HIGH SPEED WARPER BEAMS

LOOM BEAMS
TEMPLE ROLLS
WOOD TOP ROLLS

TOP WORKMANSHIP
TOP QUALITY
TOP DELIVERY

WILLIAM McCASKIE, INC.

Wooden Textile Specialties

FORGE ROAD WESTPORT, MASS.

Southern Agents: RALPH GOSSETT, Suite 104, Crawford Bldg., Greenville, S. C.
GEORGE A. HOWELL, Jr., Rockingham, N. C., Telephone 3443

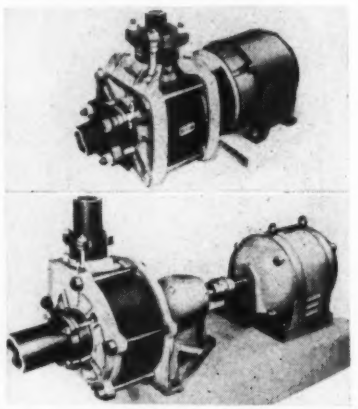
strength canvas duck, joined by riveted studs and removable cup washers and T-screws. This construction gives strength and durability at key points, yet enables the belts to be coupled and uncoupled easily.

The V-belts are said to provide maximum flexibility, to be long lasting, and to run cool and smooth. Two types are available: regular rubber coated for general service and oilproof for oily and high-temperature drives.

Air compressors, fans, and blowers are typical applications.

Circle T-23 on Reader-Service Card

Impervious-Graphite Pumps For Corrosive Service



TWO NEW CENTRIFUGAL PUMPS, both impervious-graphite pumps for corrosive service, are available from National Carbon Co., Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y. Type C (top), a heavy-duty pump, has a discharge opening of 2, 3, or 4 ins. with 8- or 10-in. impellers. Major parts, except for the volute case, suction-cover flange, and impeller assembly are interchangeable from model to model. Type F (bottom) is a motor-mounted pump. Features of both: capacities from 5 to 1,500 gals. per min. at discharge pressures to 1,000 psi., mechanical seal with enclosed coolant, and efficiencies to 60%.

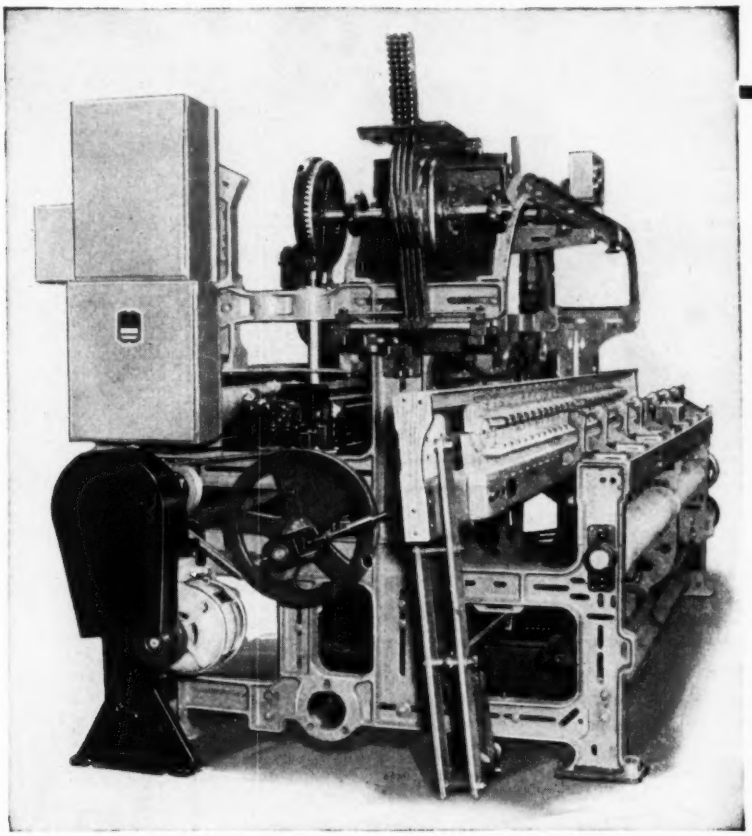
Circle T-24 on Reader-Service Card

Variable-Speed Drive Has New Disk Assembly

FLEXI-SPEED DRIVE can deliver any speed within a ratio of 6:1. A new variable-speed disk assembly makes the low speeds possible. The drive, made by Reeves Pulley Co., Columbus, Ind., can be mounted in almost any position around the driven equipment and can drive in any direction.

Circle T-25 on Reader-Service Card

MAINTENANCE OR CAPITAL INVESTMENT?



Orders for new equipment indicate that mill management is resolved to keep its lines competitive and its business profitable. Depreciation reserves are a favorite source of funds for this purpose.

For those whose reserves may not be available, the *profit possibilities* of new Fletcher Looms will facilitate the *financial problem.*

Fletcher High Speed Semi-Automatic Looms are meeting the requirements in various lines of narrow fabric weaving.

May we talk it over?

FLETCHER WORKS

223 GLENWOOD AVE. PHILADELPHIA 40, PA. ESTABLISHED-1850

• Cole builds vessels to your specifications — dye-vats, kiers, starch-kettles, acid tanks, jib boxes, or other processing vessels for the finishing and dyeing industry . . . in stainless steel, nickel-clad steel, or of standard steel lined with monel metal.

Our long experience in the design and fabrication of vessels for the textile industry may be of help to you.

•

Write for latest Cole catalog— "Tank Talk"

COLE
PRESSURE VESSELS FOR TEXTILE LIQUIDS

Established 1854

COLE
R. D. MFG. CO.
NEWNAN, GEORGIA

ELEVATED TANKS • VESSELS • CYLINDERS
TOWERS • BINS • STANDPIPES

Double Barrel Advertising

Advertising men agree — to do a complete advertising job you need the double effect of both Display Advertising and Direct Mail.

Display Advertising keeps your name before the public and builds prestige.

Direct Mail supplements your Display Advertising. It pin-points your message right to the executive you want to reach—the person who buys or influences the purchases.

More and more companies are constantly increasing their use of Direct Mail because it does a job that no other form of advertising will do.

McGraw-Hill has a special Direct Mail Service that permits the use of McGraw-Hill lists for mailings. Our names give complete coverage in all the industries served by McGraw-Hill publications — gives your message the undivided personal attention of the top-notch executives in the industrial firms. They put you in direct touch with the men who make policy decisions.

In view of present day difficulties in maintaining your own mailing lists, our efficient personalized service is particularly important in securing the comprehensive market coverage you need and want.

Ask for more detailed information today. You'll be surprised at the low over-all cost and the tested effectiveness of these hand-picked selections.

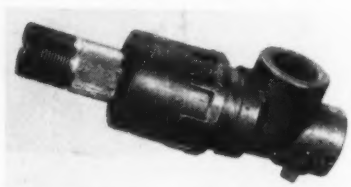
McGraw-Hill Publishing Co., Inc.
330 West 42nd Street, New York 36, N. Y.

Sweeper Hooks A Ride

POWER SWEEPER can be pushed by anything that moves, according to the manufacturer, Little Giant Products, Inc., 1530 N. Adams St., Peoria 3, Ill. It is being pushed by a fork lift truck here. It sweeps a 4-ft. path and is equipped with a 9-cu.-ft. collection hopper and a 25-gal. sprinkler system. The gutter broom is optional.

Circle T-26 on Reader-Service Card

Revolving Joint Handles Temperatures to 550° F.



HIGH-TEMPERATURE REVOLVING JOINT is made with stationary or rotating syphons with left- or right-hand threads. The joint, made by Rotherm Engineering Co., Inc., 7280 W. Devon Ave., Chicago 31, Ill., handles temperatures to 550° F. at 300 psi., air or hydraulic pressures. Sizes: ½ to 5 ins.

Circle T-27 on Reader-Service Card

More Horsepower, Smaller Size

FRACTIONAL-HORSEPOWER MOTORS made by Century Electric Co., St. Louis, Mo., have more horsepower in smaller frames with the same standards of performance. Built to the latest NEMA standards, the motors are available in split-phase, single-phase induction

AT YOUR SERVICE

SPECIALIZED ENGINEERING

SPECIALIZED EXPERIENCE

SPECIALIZED MACHINERY FOR TWISTING BUNCHING STRANDING FORMING AND LAYING IN THE TEXTILE • WIRE CORDAGE AND MANY OTHER INDUSTRIES

WRITE TODAY, YOUR INQUIRY WILL GET PROMPT ATTENTION

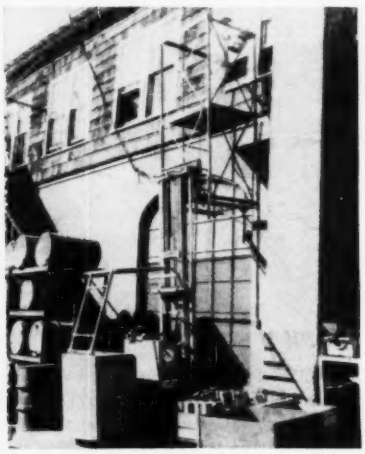
HASKELL-DAWES MACHINE CO., INC.

2231 E. ONTARIO ST.
PHILADELPHIA 34
PA.

motors for applications where the load is easy to pull up to speed, capacitor-start, single-phase induction motors for hard-to-start loads, and squirrel-cage polyphase (two-or three-phase) induction motors for general-purpose use.

Circle T-28 on Reader-Service Card

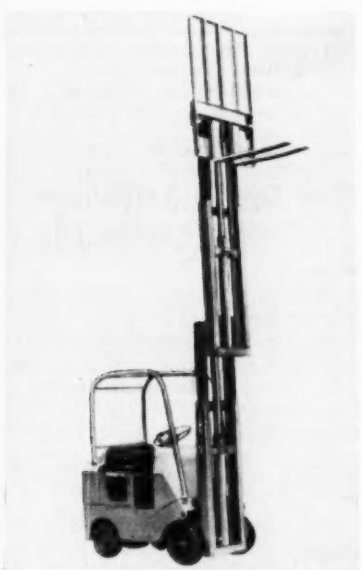
Lift-Truck Attachment Facilitates Maintenance



SCAFFOLDING ATTACHMENT for fork lift truck is being made by Lewis-Shepard Co., Watertown, Mass. Sleeves on the underside fit over the forks, and a ladder makes it easy to reach the platform. The platform can be raised or lowered with a remote-control cable.

Circle T-29 on Reader-Service Card

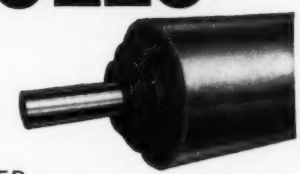
Double Telescopic Mast Doubles Lift



DOUBLE TELESCOPIC MAST for lift trucks provides a total lift of 144 to 216 ins. Masts can be operated independently or together. The masts, manufactured by Towmotor Corp.,

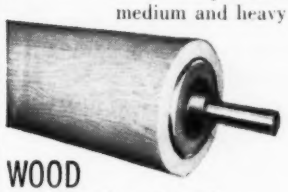
SHAF-TITE®

TEXTILE ROLLS

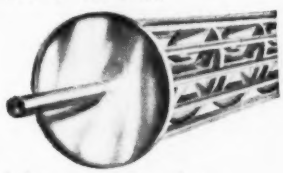


RUBBER Neoprene, natural rubber, Hycar rolls. Light and medium-duty carrier rolls and heavy-duty squeeze rolls.

METAL Steel, brass, aluminum, stainless steel and chromium-plated for light, medium and heavy duty.



WOOD
For all makes of textile washers and mangles: Self-Seal*, White Seal*, Anchor Seal* solid rock maple rolls. For fulling mills: wood lag rolls and wood lags. General purpose: Shaf-Tite, solid wood or kiln-dried wood carrier rolls.
*Trademark



REELS
Patented girder-type construction; stainless steel reels up to 20 feet in length for any make of machine. Round, hump, triangle, and oval.

FREE! Send for 64-page catalog. Permanent reference work for all rolls. Includes inquiry dimension sheets, care of wood and rubber rolls, and engineering data. RODNEY HUNT MACHINE CO., 54 Maple St., Orange, Mass., U.S.A.

RODNEY HUNT

INDUSTRIAL ROLL DIVISION
Manufacturing Engineers Since 1840

CAKE DYEING

All shades of direct or developed colors — *Big* Batches — *Big* Capacity — Our background of wound form dyeing in packages makes this possible.

Jobbers of Natural Acetate & Rayon Yarns

Atlantic Rayon CORPORATION

Dyers and Converters of Synthetic Yarns for All Industries

Plant at Providence 1, R. I.

NEW YORK REPRESENTATIVE

Empire State Bldg.

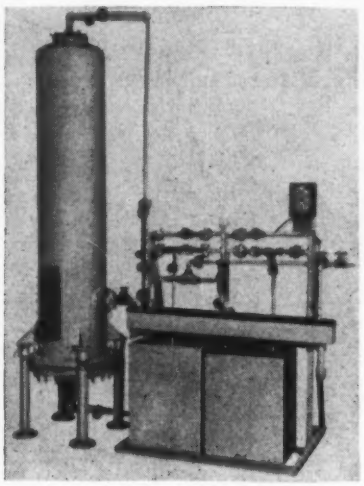
Fifth Ave., New York 1

★

Cleveland, Ohio., can be left down for regular stacking work.

Circle T-30 on Reader-Service Card

New Water Demineralizer



MIXED-BED WATER DEMINERALIZERS feature an improved system for regenerating the purifying resins after they become exhausted. The ion-exchange water purifiers are made by Barnstead Still & Sterilizer Co., 2 Laneville Terrace, Boston 31, Mass. Weakly ionizable impurities such as silica and carbon dioxide are said to be removed. Capacities are 50 to 2,500 gals. per hr.

Circle T-31 on Reader-Service Card

Correction

The address of Rieter & Co., represented by American Rieter Co., Inc., P. O. Box 147, Arlington, N. J., was incorrect in the Classified List of Products and Services in our Mid-November Buyers' Guide and Reference Data issue.

The correct address for Rieter & Co. is Winterthur, Switzerland.

New Dyeing Techniques

(*Continued from page 104*)

✦**Dynel**

Selected disperse, neutral-dyeing premetallized, and acid dyes applied by the cuprous-ion method meet many of the end-use requirements for Dynel. These are normally applied at temperatures of 205 to 208° F. With disperse dyes, shorter dyeing time and improved penetration are obtained with temperatures of 215 to 220° F.

✦**Wool, Nylon**

Wool and nylon are in the accompanying dyeing chart because they, too, illustrate the value of high-temperature dyeing. Shorter periods of time are needed when wool is dyed at 225° F. Good penetration and fastness are obtained without impairing

Karl Leyerer's

ATLAS OF 3200 COLOR BLENDS

ON ACTUAL WOOL FELTS WITH EXACT FORMULAE

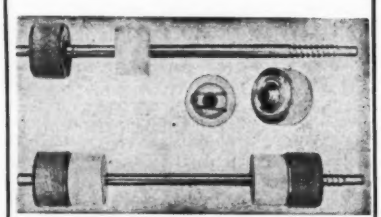
NUMBERED FOR QUICK REFERENCE

for enormous savings in time and money!

- Eliminates trouble matching samples, experimental blending, tedious, costly searches for new shades.
- Simplifies cooperation between yarn maker and yarn processor.
- Exact color shades specified by blend numbers including heathers, greys, tans, nob combinations, etc.
- World's greatest color handbook for cloth and dress goods manufacturers at reasonable cost.
- Unique training aid for students, technicians.

Agent for United Kingdom
G. E. Macpherson, Ltd.
West Bridgford, Nottingham, England

Agents for U. S. A. & Canada
STELLITE AMERICAN CORP.
60 E. 42ND ST. NEW YORK 17, N. Y.



TWO BOBBIN SPINDLE

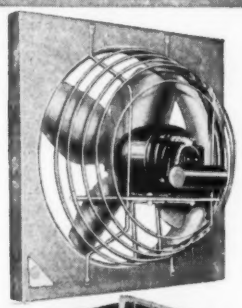
These Spindles are adjustable to the use of a long or short bobbin. Spacers of hard wood are self locking and removable.

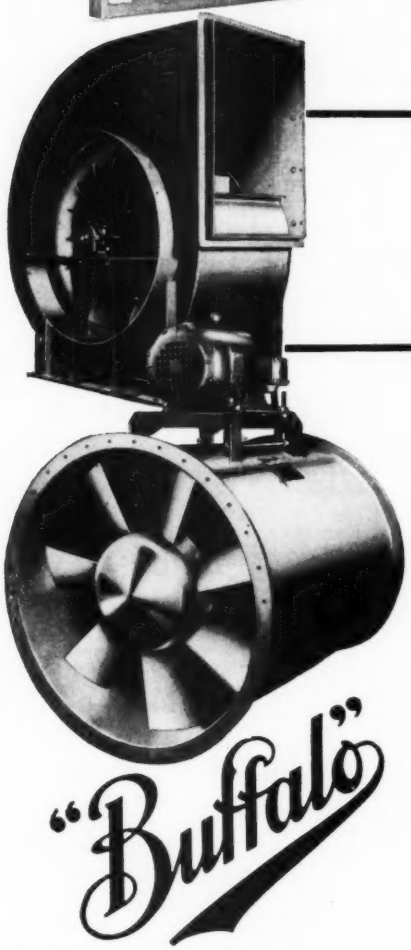
We make these Spindles to your specifications so you can use two different length bobbins on the same spindle, on the same machine without changing the spindle.

WAYNE MANUFACTURING CO.
HONESDALE, PA.

Manufacturers of Textile Mill Supplies

"Here's My Problem"
CUSTOMER:
First, one of our older buildings has areas which need spot ventilation. Then, in another building, we're going to need large-capacity exhaust to get rid of dust and moisture. Finally, we need additional capacity in an old system where we've just installed some air cleaning equipment. Now, my problem is . . .





Which "Buffalo" Fan Shall I Use?

BUFFALO REPRESENTATIVE: "To begin with, no single type of fan is the best solution to *all* problems. The best and cheapest answer to your spot ventilation, for instance, is the new Type "NV" Breezo Fan. An efficient propeller fan with strong, rigid, die-formed square panel, the "NV" is simple to install in outside walls wherever you need to exhaust stale air. It can be operated free-air or duct-connected (¼" to ½" s.p.) equally well. The "NV" is made in sizes for 500 to 5500, cfm capacities, and if you need larger capacity, use the new "NV" Heavy-Duty Belt-Air, it's in sizes up to 90,000 cfm.

"Now, for your large-capacity exhaust system, you'll get greatest long-run satisfaction and economy with the new Type "BL" Limit-Load centrifugal fan. It's the type recommended most frequently for large systems—straight ventilation, air washer and air conditioning supply. You can't overload it, and it gives stable performance from shut-off to free air delivery. And you can pick exactly the rated capacity you need, from 1000 to 500,000 cfm, with no waste in an oversize fan or over-specified driving power.

"But where you need to step up the capacity of a system, mount an axial flow fan in a straight portion of your ductwork. The "Buffalo" Axial Flow is light, compact and takes little more space than your duct. It's extremely efficient in straight runs, and has guide vanes to keep turbulence and noise at a minimum. So you see, there is no *one* fan for all jobs. At Buffalo, we make all types and sizes, so that you can pick one that's practically tailored to your particular need. We've been building fans for 77 years, too, which means that you can be sure of any "Buffalo" fans you pick."

SUGGESTION: and most important of all, remember that Buffalo Engineering Sales Representatives are all technical graduates, factory trained for a number of years; they know fans and their application. Located in all principal cities, they are ready to assist you, too, in fan selection. Why not call on yours today?

"Buffalo"

BUFFALO FORGE COMPANY

184 Mortimer St. Buffalo, N. Y.

PUBLISHERS OF "FAN ENGINEERING" HANDBOOK

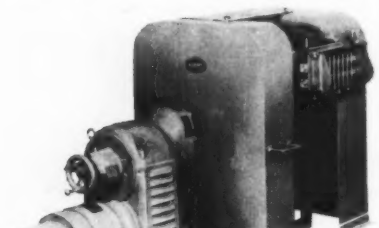
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

Sales Representatives in all Principal Cities

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT FORCED DRAFT COOLING HEATING PRESSURE BLOWING EXHAUSTING

It Cuts Flock

TO 1/64" OR 1/2 MM



TAYLOR-STILES STAPLE CUTTER

This machine cuts tow or similar forms of filament, into uniform particles at a rate of 2400 cuts per minute.

The feed can be geared to cut flock as small as 1/64th or 1/2 MM on a 4-knife machine running at a cutting head speed of 600 rpm.

This machine is in constant use by concerns that require a dependable supply of properly cut flock.

For full information let us know your exact flock cutting requirements.

TAYLOR-STILES Company
CUTTING MACHINES & KNIVES

15 Bridge Street, Riegelsville, New Jersey

the physical properties of the fiber. Neutral-dyeing premetallized dyes applied to nylon at 250° F. yield shades of outstanding fastness properties.

Carrier Dyeing

✦ Dacron

Carrier dyeing has been of particular value for Dacron. Selected disperse dyes permit the production of shades meeting men's wear fastness requirements. Typical carriers for Dacron and the concentrations recommended are as follows:

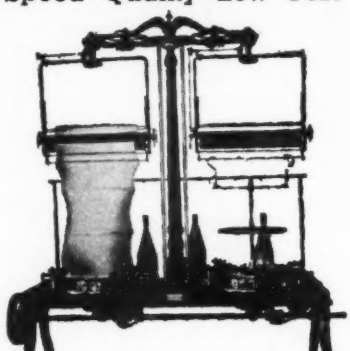
Carrier	Raw stock, top, or yarn-in package machines	Closed jig or kettle
monochlorobenzene*	20% owf†	Not suitable
p-phenylphenol	1 to 6% owf	2 to 9% owf
o-phenylphenol	2 to 10% owf	2 to 10% owf
benzoic acid	2% ows‡	2% ows
methylphenylcarbinol	2% ows	2% ows
Ketosol Solvent 75	1% ows	1% ows

* Patent for the monochlorobenzene method has been granted to General Dyestuff Corp.
† on weight of fiber
‡ on weight of solution

The monochlorobenzene method is limited to application in closed circulating machines on raw stock, top, or yarn. Suitable ventilation is necessary because monochlorobenzene is somewhat toxic. This solvent is normally used as a dispersion with a sulfonated oil, but in closed machines sufficient dispersion is obtained by mechanical agitation alone. Dyeing with disperse colors in the presence of this carrier is carried out at 185° F.; then the temperature is raised to 210° F. to remove the carrier by steam distillation.

Chlorinated benzenes produce complete penetration of the fiber, and disperse dyes applied in this way exhibit excellent fastness to successive mill processing. Finished goods meet men's wear fastness requirements. In practice, p-phenylphenol, o-phenylphenol, or benzoic acids are first uniformly distributed through the material as the water-soluble sodium salt (dissolved in caustic soda) and then reprecipitated as a fine dispersion by

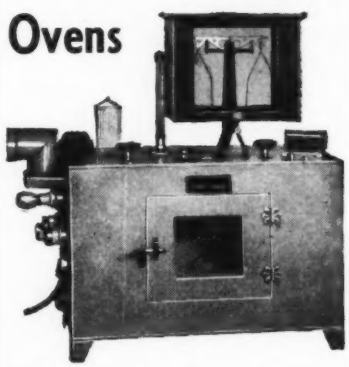
1870 CRANE 1954
SPRING NEEDLE KNITTING MACHINES
Speed - Quality - Low Cost



CRANE Spring Needle Knitting Machines meet the demands of rapidly changing patterns and styles on all weights of fabrics.

CRANE
MANUFACTURING CO.
LAKEPORT, N. H.

Textile Testing Ovens



For *accurate* testing of water content in yarn. The 8-basket oven, with 3" x 3" baskets, may be changed to 6 baskets, 4¼" x 4¼" both 6" deep. Occupies table space 20" x 40".

EMERSON Ovens

Are built in different types to handle wool, cotton and silk. Baskets are designed specially for each class of work. Write for details on EMERSON OVENS to fit your process.

EMERSON APPARATUS CO.
177 Tremont St. Melrose 76, Mass.

ADEQUATE PLANT PROTECTION begins with a Stewart fence

Don't be half safe — while you're at it, get complete protection. It could save you many thousands of dollars and countless hours of lost production. Plant protection is our business, so talk it over with Stewart. We produce many products designed for this purpose. For example: chain link wire and iron picket fence; wire window guards; wire mesh partitions; steel folding gates, and skylight guards. Also, all-steel settees, steel flagpoles, bronze plaques and other items. Stewart literature gives you the whole story. Write for it today.

THE STEWART IRON WORKS CO., INC.
2110 Stewart Block, Cincinnati 1, Ohio
Experts in Metal Fabrications since 1886

Stewart IRON and WIRE FENCES

THEY DID IT WITH SCOURCLEAN-X

SCOURCLEAN-X with Acetic Acid scoured a black and white fancy worsted.

The Solvent Action did it!

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The Solvent Action did it!

SCOURCLEAN-X with Scourtex scoured alpaca aviator jacket lining.

The Solvent Action did it!

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Export Agents
HOWARD G. GODFREY AND CO., INC.
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N. Y. 16, N. Y.
Cable Address
Godfreyorn

1041 43 FRANKFORD AVE
PHILADELPHIA 25 PA

addition of acid. Methylphenylcarbinol or Ketosol Solvent 75 are sufficiently water soluble to be used directly at the recommended concentrations. Reports from the trade indicate that these two carriers offer promise with selected disperse dyes. Since Ketosol Solvent 75 is more rapid in its action and can harshen the fiber, a lower concentration is recommended. O-phenylphenol is preferably used over p-phenylphenol where maximum fastness to light is required, as it is more readily removed from the fiber. An alkaline scour after dyeing is recommended for removal of these carriers when necessary.

✦ Acrylic Fibers

Carrier techniques have been used to a more limited extent on acrylic fibers. Increased color values are obtained in dark shades on Dynel with acid colors applied by the cuprous-ion method with the assistance to 2 to 2½% p-phenylphenol (owf). This amount should not be exceeded if shrinkage of fiber is to be avoided. Certain disperse dyes in the yellow

* * *

Carrier Dyeing

A carrier is a chemical assistant of limited water solubility that promotes penetration and sorption of dye. This action is frequently accompanied by a swelling of the fiber, but such is not always the case. Monochlorobenzene, a very efficient carrier for disperse dyes on Dacron, does not swell the fiber but produces a layer of concentrated dye solution around the fiber. A disperse dye that is readily absorbed by the fiber will exhaust much less onto the fiber if a water-solubilizing group is introduced into the dye molecule. The dye is more attracted to the water of the dye medium and stays in solution.

Effective carrier action can be impeded in a similar manner if a mutual solvent or emulsifying agent overcomes attraction for the fiber by increasing the solubility of the carrier in the water medium. This effect can be illustrated in the case of n-butanol, which at concentrations of 3 to 5 oz. per gal. of dyebath is a very effective carrier in dyeing acetate with vat colors. In this case, reduction and dyeing without saponification of the acetate are accomplished through the use of an organic alkali and sodium hydrosulfite.

The addition of a mutual solvent such as Cellosolve to the dyebath stops the carrier action and yields a poor color value. In a similar manner, it is possible to produce such stable dispersions of monochlorobenzene as to impede its carrier action. This selectivity between fiber, carrier, dyestuff, and dyeing medium is characteristic of the problem. Of the hundreds of possible carriers tried, only a limited number have proved of practical value. The ideal carrier should be cheap, perform its work, and then be easily removed from the fiber after dyeing. Certain carriers, if not removed from the fiber, adversely affect lightfastness.

Test moisture content *in* 3 *seconds* with Moisture Register!

Model PD-1

Model K-2

You get *accurate*, almost instant, moisture content readings in **wool, cotton, rayon, nylon—practically any type of textile**—when you use Moisture Register Model PD-1 or Model K-2.

Either model gives you "on-the-spot" readings with guaranteed accuracy. They're simple to operate, require no technical knowledge or skill, weigh only 6 pounds, easily portable.

Model PD-1 tests textiles in loose or compressed forms with 3" penetration. Model K-2 tests cones, beams, rolls and similar forms.

ONE YEAR GUARANTEE!

Use one of these instruments **FREE** for 10 days. No obligation! Prove for yourself that Moisture Register will help you maintain higher standards, iron out production headaches, add to your reputation as a manufacturer of quality products. Fill out coupon, mail today!

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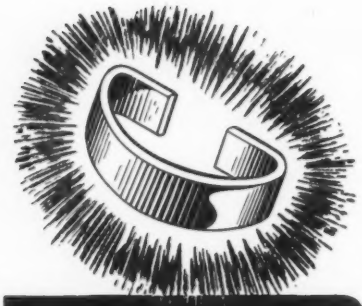
☐ Please send me, *without obligation!* for 10-day free trial,
Model.....for use on.....
Enclosed find purchase order to cover trial period.

NAME
TITLE
COMPANY
STREET
CITY
STATE

☐ Please send me information on Moisture Register for use on .....



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Dary Ring Travelers . . . these words have a welcome ring to millmen throughout the textile industry. For many, many years Dary has meant dependable spinning and twisting performance, however difficult the assignment.

The next time your Dary representative calls, welcome him, for he carries a wealth of experience and offers the finest quality travelers available anywhere.

THE DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS
LINDSEY I. PHILLIPS, TREASURER, TAUNTON, MASS.
JOHN E. HUMPHRIES, BOX 843, GREENVILLE, S. C.
JOHN H. O'NEILL, BOX 720, ATLANTA, GA.
JAMES H. CARVER, BOX 22, RUTHERFORDTON, N. C.
CRAWFORD "JACK" RHYMER, BOX 2261, GREENVILLE, S. C.

range (dyes with phenolic groupings) act as carriers for acid colors applied by the cuprous-ion method. In this case a single dyebath is used for both classes of colors. Improved color values are obtained with disperse dyes on Acrilan through the use of 6 to 8% p-phenylphenol (owf). When this carrier is employed, the lightfastness must be checked to make certain that it has not been impaired by the presence of unremoved carrier.

Special Methods of Application

✦ **Cuprous-Ion**

Acrylic fibers exposed to cuprous-ions have improved affinity for selected acid and direct colors. In general, acid dyes containing monosulfonic acid groups are best. The reducing agent should have a reduction potential sufficient to reduce cupric copper to the cuprous state but not to affect the dye or produce free copper. This method finds particular interest for dyeing Dynel and Orlon 42. Certain acid dyes that produce dyeings of inferior washfastness on wool or nylon yield shades of good washfastness and lightfastness on Orlon 42 when applied by the cuprous-ion method. For application to Dynel, copper sulfate can be reduced with either zinc sulfoxylate-formaldehyde or hydroxylammoniumsulfate, and dyeing is carried out at 208 to 212° F. Orlon 42 can be dyed at temperatures up to 230° F. to obtain a broader selection of dyes of improved wetfastness properties. Instrumental measurement of reduction potential is a valuable tool in controlling this method of dyeing.

✦ **Developed Azo**

The use of developed azo combinations for the production of bright orange, scarlet-red, and maroon shades on Dacron with very good fastness to washing and light necessitated the use of special techniques. The fiber absorbs dispersed beta-hydroxynaphthoic acid as well as certain selected diazotizable bases, such as p-chloro-orthotoluidine. In practice the two components are simultaneously exhausted from one bath at 205° F. After rinsing, diazotization is started cold and gradually raised to 180° F. (5% sodium nitrite, 5% sulfuric acid, 66° Bé, owf). The dye is produced within the fiber.

Fabric Tests in Blending

(*Continued from page 103*)

changes in dimensional stability of fabrics. Fabric dimensional changes were measured between conditions of 15 and 90% r.h. The results for blends of rayon with Dacron, Orlon, and nylon in tropical-weight fabrics show the stabilizing effects of Dacron and Orlon. Nylon exerts appreciable stabilizing effect on rayon but considerably less than the other two fibers. Similar trends were found for combinations of wool and synthesized fibers.

Dry Cleaning and Laundering

Studies were made of the effect of laundering and dry cleaning on crease recovery, stiffness, and shrinkage of fabrics, both 100% hydrophobic fibers and blends of hydrophobic and hydrophilic fibers. Both were lowered approximately the same by laundering as by dry cleaning. The rayon-acetate, resin-treated fabrics had the greatest loss increase recovery and stiffness, presumably due to a loss or change in the resin content.

Shrinkage after 10 commercial dry cleanings, or commercial launderings, was found to be less for fabrics composed entirely of Dacron, nylon, or Orlon than for those of rayon, acetate, or wool. The stability inherent to the synthetic fibers was carried over into blends in approximate proportion to their concentrations.

Press Retention

Both Dacron and Orlon exert a strong stabilizing effect on the pressed creases of blended fabrics. Nylon apparently failed to stabilize creases under the conditions of measurements. This is explained by the fact that all fabrics, except the all-rayon fabric, were exposed to a temperature of 385° F. in finishing. The temperature attained on the Hoffman finishing press usually ranges from 210 to 240° F. This range is not high enough to cause a rearrangement and fixation of the internal molecular structure for this particular fabric. Nylon is by far the least responsive to heat. If a set is imposed on nylon, its effect will not be overcome unless the severity of the original setting conditions is exceeded. Nylon will also stabilize creases if the temperature conditions are properly manipulated.

Local Melting

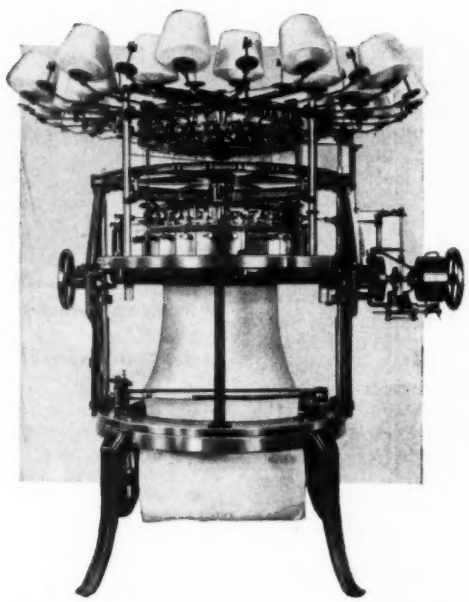
A test has been devised in which heated pellets of known temperature are dropped on a fabric. The rate and extent of damage is observed, and tests are repeated with hotter or cooler pellets until the maximum temperature at which the fabric performs satisfactorily is determined. The temperature in centrigrade degrees divided by 10 is taken as the hole-melting index or Perther rating.

Rayon added to Dacron or nylon sharply reduced hole-melting tendencies. Fabrics of Orlon were satisfactory, and blends of rayon with Or-

Time-proven facts
of interest to executives

versatility | plus

when it's a Wildman | *Interlock Machine*



The wide range of production uses inherent in this Machine is indicated by the several types of garments illustrated — but this is just a small percentage of its total application.

For instance, the Wildman Interlock Machine is built in a wide range of sizes and cuts for sportswear, underwear, dress fabrics and outerwear. It is especially made for the exceptionally wide fabric produced — your technical imagination can take it from there.

In today's competitive market, the progressive producer needs a basic production unit that keeps him abreast of market trends. This is it! . . . Available in all popular sizes 15" to 30" and furnished in all cuts 10 to 24 needles per inch. Belt or individual motor drive. Inquire today for complete information.

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MANUFACTURERS OF: FULL FASHIONED HOSIERY MACHINES; CIRCULAR MACHINES FOR OUTERWEAR, UNDERWEAR, SPORTSWEAR, TRIMMINGS; STOP MOTIONS

cleaning fluid directly from a 55 gal. drum. E. 42nd St., New York 17, N. Y. It uses

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Here's the wrench for rugged duty—and hard tough work—backed by our *unconditional guarantee!* This means you are fully protected against expense if the wrench housing or hook breaks or distorts—we will replace it Free.

You'll like the easy-action nut and single spring that assure quicker easier setting of jaws . . . improved handle design that increases strength and provides better hand-grip. Built for easy handling . . . long life! Complete range of sizes—6" to 48". Write for new catalog. Order through your supply house. The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office: 165 Broadway, Room 1310.

Rely on the Leader . . . all the way!

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PIPE TOOLS • POWER PIPE MACHINES • POWER DRIVES

lon gave somewhat higher resistance to local melting. Rayon was more important in protecting Dacron and nylon blends. Adding acetate to Orlon decreased the Perther ratings so that about 30% acetate added to Orlon brought the resistance below the satisfactory level. Acetate failed to assist Dacron or nylon significantly. Wool is effective with Dacron.

The local-melting tendencies of fabrics of Dacron or nylon were reduced sharply by adding more than 20% rayon or 50% wool.

Combustibility

It is important to determine how various fibers influence burning when combined in one fabric. Combinations of nylon and glass fiber will burn, whereas neither fiber alone will support combustion.

None of the test fabrics showed a detrimentally low value of burning time. Adding rayon or acetate to Dacron or nylon lowered the index of burning. Tropical-weight fabrics of blends of wool with Dacron or Orlon burned slightly faster than the 100% wool. Additions of Dacron or nylon to wool in 18-oz. serges improved the burning index.

Static Electricity

Blends of certain fibers offer an alternate means for permanently reducing the static effect by reducing the tendency to form static or by dissipating the charge through conducting fibers.

Rayon added to Dacron, nylon, or Orlon reduced the static appreciably. Acetate did not change the static propensity of Dacron or Orlon, and wool balanced with Dacron or Orlon apparently had lower static than either wool or the synthetic fibers alone. These trends were confirmed by results of objective tests, in general, except for blends containing wool. The anomaly in this latter case is under study.

Test Fabric Construction

In the majority of the test fabrics, nylon, Dacron, or Orlon staple were combined into two component blends with rayon, acetate, or wool fibers and then woven into carefully controlled fabric constructions. The wool used was approximately 58s in the heavy fabrics and 64s in the light fabrics. The constructions were an 18-oz. serge patterned after a U.S. Quartermaster specification, and a 6-oz. tropical worsted. The yarns for any set of fabrics were spun to equal diameters rather than to the same count. They were given the same singles and plied twist. The weave was adjusted to the same pick and end count, and the finishing was identical. A series of tests was made with fabrics of slightly different constructions and with somewhat modified finishing treatments, to gain assurance that minor variations had no appreciable effect on the results.

The same procedure, in general, was followed in the preparation and testing of blends of cotton with the synthesized fibers. For these blends, fabric constructions were selected to reproduce large-volume cotton fabrics in the field of knitwear, denim, broadcloth, duck, and percale.

Useful Accessories For Textile Mills

▶ To request further information on any item, please use the card in the Reader-Service dept.; refer to the number at the end of the item concerned.

Motor-Control Valves

A new line of diaphragm motor-control valves has been announced by the Industrial Div., Minneapolis-Honeywell Regulator Company, Philadelphia, Pa. The new valves, Series 800, were designed for use with wide-band, proportional control instruments. The valves feature a redesigned diaphragm motor—direct-acting, reverse-acting or springless. (U-1)

New Points for Socket Screws

Allen socket screws are available in two new points: setscrews are available with a smaller cup point; capscrews are available with an unthreaded leader point. The smaller cup point insures greater locking and the unthreaded leader point reduces thread and threaded-hole damage, according to the manufacturer, The Allen Mfg. Co., 113 Sheldon St., Hartford, Conn. (U-2)

Gummed-Tape Dispenser

A tape dispenser that moistens and applies any kind of gummed tape directly to a carton has been developed by Roll-On-Sealer Co., Antioch, Ill. The dispenser has an adjustable guide for tapes up to 3 ins. wide. Cost: $39.95. (U-3)

Solvent Spray Gun

Continuous spray cleaning with solvent, emulsion or aqueous solutions is said to be easier with the siphon spray gun offered by the John B. Moore Corp., P. O. Box 3, Nutley, N. J. The gun is designed to draw

soap and oil separate.

3. Belt too far from the bearing.

cleaning fluid directly from a 55-gal. drum. Price: $19.95 plus shipping charges. (U-4)

Pallet Trucks

Two new materials-handling devices have been introduced by the Market Forge Co., Everett, Mass. The Model SD combination-pallet Load-Lift handles both single-faced and double-faced pallets, and the Model D pallet Load-Lift handles double-faced pallets. (U-5)

Explosionproof Hand Lamp

An explosionproof, rain-tight hand lamp that weighs 4¾ lbs. is available from Crouse-Hinds Co., 7 North St., Syracuse, N. Y. The globe guard, globe holder, and cord-connector housing are aluminum. The lamp-receptacle housing is a lightweight molded phenolic composition. (U-6)

Spot-Welding Gun

A lightweight spot-welding gun has been developed by Air Reduction Co., Inc., 60 E. 42nd St., New York 17, N. Y. It uses a 3/32-in. thoriated-tungsten electrode and an inert-gas shield to make instantaneous welds on stainless, mild, and alloy steels. (U-7)

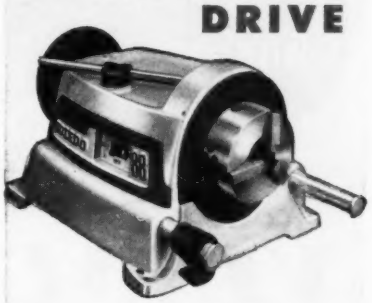
Wire-Inforced Rubber Hose

Wire-braid steam hose, a new industrial rubber hose, has been developed by Hamilton Rubber Mfg. Corp., Trenton, N. J. The two plies of high-tensile wire are separated by a layer of heat-resisting rubber. Sizes: ¼- to 1¼-in. I.D. Recommended for saturated steam to 200 lbs. or superheated steam to 385° F. (U-8)

Stainless-Steel Valve

A stainless-steel valve has been announced by The Copper Alloy Foundry Co., Hillside, New Jersey. This union-bonnet, inside-screw, nonrising stem valve is available in ½-, ¾- and 1-in. sizes. It has a shell-cast body and precision-cast disk. (U-9)

new
TOLEDO 88
POWER DRIVE



BETTER . . .
STRONGER . . .
MORE POWERFUL . . .

. . . for operating hand pipe threaders, cutters, reamers

• Fast . . . rugged . . . efficient . . . saves time and muscle!

• Light weight . . . aluminum housing . . . easy to carry about!

• Capacity—⅛" to 2" pipe, ¼" to 1½" bolts; with universal drive shaft, geared die stocks and cutters up to 12".

Converts hand tools to power—in your shop or on the job anywhere! Toledo-engineered to give you finest performance . . . advanced features throughout! Can be mounted on bench or service truck or furnished with set of legs and tool tray as accessories.

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Rely on the Leader . . . all the way!

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Mill Maintenance

Use This Checklist To Stop Motor Overheating

Most motor troubles you'll meet start or end with overheating. *Power* has listed the causes of this trouble and also gives many of the cures.

Nine Reasons for Motor-Frame Overheating

1. Overloading caused by increased load, fault in the driven machine, or tight bearings.
2. High ambient temperature or motor too near the heat source. To correct this condition, improve the ventilation, move the motor, or design heat barriers.
3. Poor motor ventilation because of dirt in the ventilation because of dirt in the vent holes. Solution: clean the holes thoroughly, install motor vent ducts, or replace the motor with a totally enclosed motor.
4. Low supply voltage. Check with your local power company. You may need a booster transformer or a new feeder.
5. Windings connected wye rather than delta. The motor-starter handle may be in the wrong position or windings connected wrong.
6. Poor connection in a squirrel-cage rotor.
7. Single phasing. Caused by a blown fuse, poor contact or open circuit in windings, starter, switch, or wiring.
8. High-resistance ground in winding.
9. Turns or coils in winding shorted out.

Hot Ring-oiled Bearings Result From Seven Causes

1. Not enough oil in the bearing well. A leak in the drain plug or gauge glass. The overflow pipe bent or stopped up.
2. The oil ring sluggish or not moving. The ring too tight in the slot. Ring damaged. Dirty oil. Oil of the wrong viscosity.
3. The ring jumps out of the slot. To correct, fit a retaining strip in the slot.
4. Bearing grooves clogged.
5. Oil grooves cut wrong in bearing (see *Power's Handbook of Bearings and Lubrication*, page 87).
6. Bearing too tight.
7. End thrust on a sliding bearing designed for radial load only. Faulty drive. Incorrect assembly of the bearing, or the job may call for a thrust bearing.

What Makes Ball Bearings And Roller Bearings Run Hot

1. Not enough clearance in the bearing. Check to see if the bearing number and type agree with the manufacturer's specifications.
2. Inner or outer race turning in the shaft or housing.
3. Too much grease. Pack bearing only about a third full and leave the relief plug out for 1 min. after the machine starts.
4. A poor grade of grease having

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A BETTER PRODUCT

AT LOWER COST

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VINAC

(POLYVINYL ACETATE EMULSIONS)

Consult COLTON

Chemists with "Polyvinyl Know-How"

VINAC WR-20 (a modified Polyvinyl Acetate Emulsion), originally formulated at the request of a major textile manufacturer, solved a difficult sizing problem. The material produced many desirable effects — among them, lower production costs. It is now available in our regular line of emulsions.

If you need special properties or modifications to give your product that extra "edge", you will find that developing special grades of VINAC to achieve this is an every-day service offered by The Colton Chemical Company.

Where a standard grade of Polyvinyl Acetate Emulsion is desired, VINAC XX will improve quality and lower cost of such products as Adhesives, Textile and Paper Finishes and Coatings, Saturants, Binders, Primers and Sealers.

Colton VINAC is outstanding for excellent compounding stability and tolerance with plasticizers, thickeners, pigments and solvents. VINAC films are strong, clear, glossy, greaseproof and resistant to light and oxidation.

Write The Colton Chemical Company stating your particular problem. Samples of VINAC will be sent you with recommendations for their profitable application in your production. Address Dept. 342.

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1545 E. 18th ST., CLEVELAND 14, OHIO

Manufacturers of VINOL Polyvinyl Alcohol — VINAC Polyvinyl Acetate in Solid, Solution and Emulsion Form —

soap and oil separate.

Hot Bearings—All Types Have Common Causes

1. Poor alignment of coupling or drive gear.
2. Driving belt too tight (both flat or V-belt).
3. Belt too far from the bearing. To correct, reduce the pulley overhang or add another bearing to handle the belt load.
4. Middle or outer bearings of three-bearing units overheating. The hot bearings take more than their share of the load, and uneven bearing wear and poor alignment result.

Books of Interest

Vat Dyes—Latest Techniques

THE APPLICATION OF VAT DYES, AATCC Monograph No. 2; AATCC, Lowell, Mass.; cloth, 448 pages, $5 to members, $6 to nonmembers.

This monograph contains the work of many mill-experienced authors, plus good, sound chemical and application principles developed in the laboratories and mills enjoying AATCC membership.

Five chapters cover vat-dyeing techniques for all forms of cotton—stock, skeins, packages, warps, and piece goods. Other chapters are devoted to hosiery, fibers other than cotton, printing, indigo dyeing, use of vats as pigments, and other pertinent and useful information. Over a hundred pages are devoted to specific vat dyes, listed alphabetically, with chemical structures, reduction data, substantivity, and many other practical dyeing properties.

This book puts between two covers much information that a dyer is constantly searching for. It is a good investment for any laboratory, dyehouse, or printshop.

All About the Consumer Price Index

A LAYMAN'S GUIDE TO THE CONSUMER PRICE INDEX; Bureau of Labor Statistics, 341 Ninth Ave., New York 1, N. Y.; paper, 34 pages, 20¢.

You don't have to be a statistician to understand how the Bureau of Labor Statistics' consumer price index is put together if you read a new booklet that has just been released by that government agency. The illustrated booklet is written in nontechnical language and fills a real need for a popular description of what has come to be known as the nation's "most important single statistic."

This booklet tells how the consumer price index is compiled, why it is necessary periodically to revise the index, and what its uses and limitations are. There is an appendix giving the names of the 46 cities in which prices are collected for the index, and the months in which the cities are priced; a list of the approximately 300 items priced for the index and their 1952 relative importance; and a comparison of the index before and after the 1950 adjustment, and after the 1953 revision.

For the Chemistry Student —Good Synthetic-Fiber Chemistry

FIBRES FROM SYNTHETIC POLYMERS, by Rowland Hill; Elsevier Publ. Co., 155 E. 82nd St., New York 28, N. Y.; cloth, 554 pages, $12.50.

This book is a compilation of data from authoritative sources, well indexed, and with every chapter keyed to its own bibliography.

Polymer chemistry, kinetics, energetics, polycondensation principles, and other basic information are supplemented by chapters on fiber properties and dyeing procedures.

Recommended for the student who contemplates future work in the synthetic-fiber field and for the bookshelf of the graduate. A handy quick-reference work.

Skinner Publishes 1953 Wool Trade Directory

SKINNER'S WOOL TRADE DIRECTORY OF THE WORLD, 1953; Thomas Skinner & Co. (Publishers) Ltd., 10 Booth St., Bradford, England; cloth, 1,173 pages, three pounds, five shillings ($9.10).

In brief, this book is a wool trade directory of the world. The emphasis is on Great Britain (for instance, all mill-supply companies listed are British), but the wool merchants and top makers, mills, and wool dyers in every country are listed according to the geographical breakdown of the country. A useful section of general information is included.

Book Lists Products Of British Manufacturers

FBI REGISTER OF BRITISH MANUFACTURERS, 1954, 26th edition, Federation of British Industries, by Kelly's Directories Ltd. and Iliffe and Sons Ltd., Dorset House, Stamford St., London, England; cloth, 952 pages, 42 shillings ($5.88).

The FBI in Britain is the Federation of British Industries, and this book lists every member of that federation with their products and services. Also included are sections on brand names and trade names. Textiles concerns, of course, are only a small part of the membership, but they are all there.

YOU NEVER SAW SUCH SPEED BEFORE...

this new "STOP-MOTION" shuts off the loom for broken ends, loose ends, tight ends...

It's *brand new!* We call it the B. L. T. Warp Compensator Stop Motion because a Broken, Loose or Tight end halts the machinery automatically.

It can be added to any model Kidde Warp Compensator regardless of the year of manufacture.

The B. L. T. Stop Motion in combination with the Kidde Warp Compensator will give you smooth, even beams, preventing shiners, stressed yarns, lost ends, crushed or warped beams by allowing you to control yarn tension with accuracy.

This may be the answer to your tension problems. Remember, more than 500 textile mills are now using Kidde Tension Compensators.

Write today for full information.

Kidde

Walter Kidde & Company, Inc.
191 Main Street, Belleville 9, N. J.
Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

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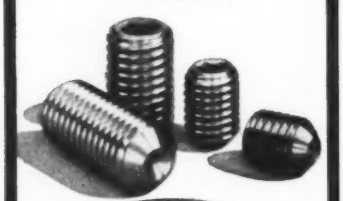
NEW
Allenpoint
Set Screws
WITH
SCIENTIFICALLY-DESIGNED
SMALLER CUP POINTS

Tested comparatively by United States Testing Company* with standard cup point screws and screws with angled and serrated points, the new Allenpoint demonstrated (1) greater locking power at *all* measured installation vs removal torque pressures, (2) uniformly high shaft holding power in torque resistance tests, (3) unmatched performance under vibration, and (4) more complete shaft contact pattern. Sold *only* by leading Industrial Distributors. Write for more facts about the results of these important tests of set screw performance.

*Report No. E 5576, March 17, 1953.



ALLEN
MANUFACTURING COMPANY
Hartford 2, Connecticut, U.S.A.

WILLIAM BUXMAN (center), retiring assistant to the publisher of TEXTILE WORLD, is presented with a gold wrist watch by Donald C. McGraw, president of McGraw-Hill Publishing Co., Inc., at a dinner honoring Mr. Buxman's 70th birthday. Col. Willard Chevalier, executive vice president, observes the ceremony from his chair as toastmaster.

Happiness on Your Well-Earned Retirement, Bux

William Buxman, assistant to the publisher of TEXTILE WORLD and formerly advertising sales manager, retired from active duty on December 31. He had reached his 70th birthday on November 24 and had completed 45 years with the McGraw-Hill Publishing Co., Inc., on October 12. Seventeen of those years had been with TEXTILE WORLD.

"Bux" joined the Hill Publishing Company, as a member of the staff of *Power*, in 1908. He first engaged in production work and as copy writer and eventually was appointed manager of *Power* (a position that he has held on two different occasions). When McGraw-Hill Publishing Company was organized in 1917, he was appointed manager of *Engineering News-Record*. His next post was assistant to the vice president in charge of the business activities of *Engineering News-Record, Chemical & Metallurgical Engineering, Engineering & Mining Journal*, and *Coal Age*. At that time he founded the *ENR Construction Daily*. Later posts were: manager of the Classified Advertising Department, vice president and general manager of the Catalog Company, and again manager of *Engineering News-Record* and *Construction Methods*.

A dinner in Mr. Buxman's honor was staged on his recent birthday. Col. Willard Chevalier, executive vice president of McGraw-Hill, served as toastmaster and said he had been happy to accept the assignment because of his "very great affection, respect, and gratitude for Bux's friendship through the years."

Speaking of Mr. Buxman's 45 years with McGraw-Hill, Donald C. McGraw, president, said, "A splendid record. It is not only long in years, but it is also long in quality. . . . It is such qualities in such men that have built the company. . . . As long as we can have people on our staff of the caliber of Bux, the future is secure."

Donald H. White, who succeeded Bux as advertising sales manager of TEXTILE WORLD on October 1, said, "There are countless reasons for my sincere happiness in being back with the company, and certainly among those at the top is the opportunity to express my congratulations and best wishes on this occasion. To step into the job that you have so ably filled on TEXTILE WORLD is no small responsibility; I am sure that the sincerity and inspiration that you have demonstrated will stand me in good stead."

Thanks to Mr. Buxman for his contribution to the impressive strengthening of TEXTILE WORLD in recent years was expressed by Edwin D. Fowle, publisher of this journal. Mr. Fowle added: "My esteem for you is based on more than mere gratitude. I have admired your human qualities—your kindliness toward other members of the staff, your good nature, sociability, friendliness, and your desire to help the newcomer learn and grow. I have admired your preaching and practicing of high ethics in this business. The publishing profession is the better because you have been associated with it."

Mr. Buxman plans to spend the first year of his retirement in visiting old haunts in Colorado, the West Coast, and the South. Mail addressed in care of TEXTILE WORLD will be forwarded to him.

THE LOYAL T

about an increase in the present 75¢-

News of the Month

FOUNDATION FOR AUBURN FORMED

An Alabama Textile Education Foundation has been established by, but independent of, the Alabama Cotton Manufacturers Association through its Textile Advisory Committee. The new foundation is a nonprofit organization and will solicit funds from the textile industry to provide additional staff members at the Alabama Polytechnic Institute textile school, to promote research, and to provide equipment at the school. M. Earl Heard, vice-president of West Point Mfg. Co., was named first president of the foundation.

MOISTURE REGAIN

U. S. delegates (Roy A. Cheney and Sidney S. Korzenick) to the First International Knitgoods Congress in Paris found that the moisture-regain problem does not exist abroad. An official conditioning house in Bradford, England, organized by an Act of Parliament, tests a shipment of yarn for moisture content, strength, and twist, and issues a certificate that is acceptable as evidence in a court of law. A similar testing house exists in Roubaix, France.

Although the regain standard for worsted yarns is 18¼% in Europe, it is rare that testing procedures are followed.

ASQC MEETING

The three-day meeting of the Textile Div., American Society for Quality Control, at N. C. State College, Feb. 4, 5, and 6, will feature papers on manufacturing, elementary and advanced statistical quality control, and operations research. Papers will include: "Control in Fiber Blending," by E. B. Grover; "An Evaluation Program for New Equipment," by R. C. Tanner; "The Use of Fiber Tests in Cotton Purchasing," by W. A. Julian; a panel discussion on evenness testing, moderated by Dame Hamby; and "Developing Quality-Mindedness," by Robert Jones.

FLAMMABILITY STANDARDS

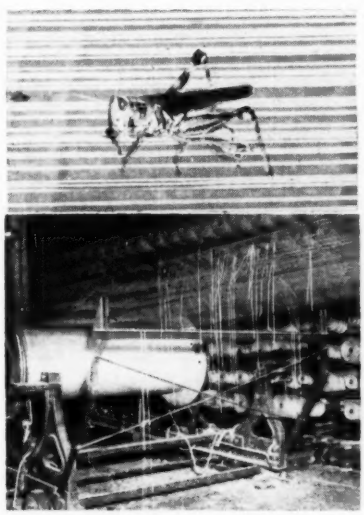
Copies of *Flammability of Clothing Textiles, Commercial Standard CS-191-53* are available from Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 10¢ per copy, 25% discount on 100 or more. The commercial standard provides methods of testing and rating the flammability of textile products for clothing use.

$2 BILLS SHOW VALUE OF MILL

To show the merchants and citizens of Eastman, Ga., the value of the textile industry to a small community, Eastman Cotton Mill recently paid its complete payroll in $2 bills. More than 6,000 of these unusual bills were circulated in the small town, and the local people got a good opportunity to observe where the buying money came from.

HIGHER MINIMUM WAGE?

Secretary of Labor Mitchell recently indicated the Eisenhower administration is willing to raise the minimum wage. He said, "We are working hard to find ways and means to bring



GRASSHOPPER EATS RAYON YARN

GRASSHOPPER was caught in action at C. H. Masland & Sons Co., Carlisle, Pa., after he had twice ruined a beam of rayon on the slasher. It took three men almost three hours to repair the damage; then, when they came back from lunch, the beam was back in the same condition. This time, however, the grasshopper was caught eating rayon for lunch.

LUBRIPLATE IS THE IDEAL LUBRICANT

—say leading Textile Manufacturers

LUBRIPLATE Lubricants have won acceptance in the textile industry because even with speeds up to 25,000 R.P.M., they have exceedingly long life and do not break down. LUBRIPLATE Lubricants range from the lightest oils to the heaviest greases to meet every requirement of the textile industry.

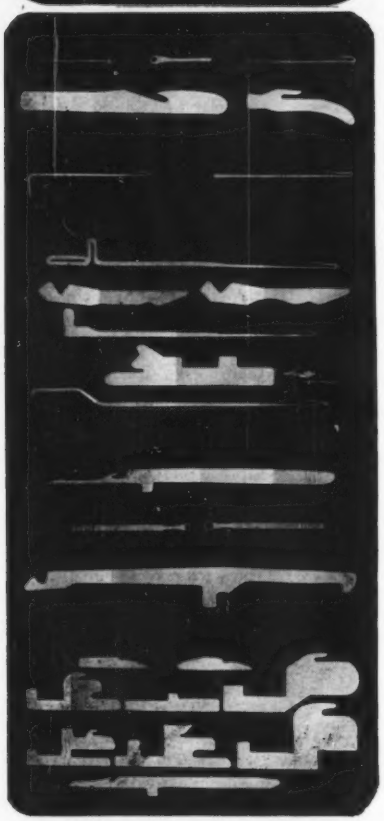
REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

THE LOYAL T. IVES COMPANY

SPRING BEARD KNITTING NEEDLES



The Ives Company manufactures all known types of Spring Beard needles — for circular, full-fashioned and tricot knitting machines.

Also, Sliders, Sinkers, Jacks, Guides, Sley Points, Looper Points, Transfer Points or Quills, for Spring Beard and Latch Needle knitting machines.

Complete line, all gauges and styles of Needles, Guides, Sinkers and Sley Points for Reiner, Aviscо and Whitin Tricot machines. Also equipped for complete casting and squaring service for Tricot machines.

NEW BRUNSWICK NEW JERSEY

about an increase in the present 75¢ an-hour minimum to a more realistic level in keeping with present-day wage levels. We do not yet know what that level should be." A minimum rate of $1 an hour has been mentioned.

FIVE ECONOMIC TRENDS

The five main economic trends that affect every American businessman, according to James G. Law of Magee Carpet Co. and the Carpet Institute, are: (1) rapidly increasing population, (2) tremendous growth in home ownership, (3) increased recognition of the values of family life, (4) upsurge of a "do-it-yourself" trend, and (5) continued emphasis on national security.

SYNTHETICS ENTER NEW FIELDS

▶ Two-bar tricot made from 30-den., opaque nylon yarn is being used for fitted bed sheets by Glen Raven Knitting Mills, Inc. The sheets will retail for about $9.95 for a twin-bed size, but they dry quickly and need no ironing.

▶ Orlon uniforms are being tested by service-station attendants. Orlon is resistant to battery-acid damage.

▶ Nylon air-mail bags are getting final tests this month by the Post Office Dept. The department estimates that a million dollars will be saved by replacing cotton with nylon bags on air-mail routes.

FACTS ON WOOL

"Know Your Woolfacts," an index of educational materials available on wool and wool products, has been published in the 1953-1954 revision by the Wool Bureau. The booklet, which is distributed free on request, lists booklets, books, exhibits, photographs, motion pictures, film strips, and slides.

MOVIE OPPORTUNITIES IN TEXTILES

"Opportunity America" is the name of a 28-min. motion picture recently completed for Jefferson Mills, Jefferson, Ga. The picture, produced by Beeland-King Film Co., Atlanta, Ga., will be made available to civic groups and schools to show the career opportunities available in the textile industry. All actors in the film are residents of Jefferson County.

FIBER PRODUCER EXPANDS

Industrial Rayon Corp. is going to build a $5-million plant to manufacture a "nylon-type" staple fiber. The plant, which will be in Covington, Va., will have an initial output of 6-million pounds a year beginning in the latter part of this year.

Textile Calendar

AATCC, Phila. Sect., Kugler's Restaurant, Philadelphia, Pa., Jan. 15.

Plant Maintenance Conference and Exposition, Chicago, Ill., Jan. 25 to 28.

AATCC, New York Sect., Hotel Statler, New York, Jan. 29.

National Cotton Council, annual meeting, Biltmore Hotel, Atlanta, Ga., Feb. 1 and 2.

Five-Day Course on Corrosion Problems, Washington State College, Pullman, Wash., Feb. 1 to 5.

ASQC, Textile Div., technical meeting, School of Textiles, N. C. State College, Raleigh, N. C., Feb. 4 to 6.

Philadelphia Textile Institute Alumni Assn., annual reunion, Warwick Hotel, Philadelphia, Pa., Feb. 5.

Industrial Recreation Conference, Purdue University, Lafayette, Ind., Feb. 14 to 16.

AMA, personnel conference, Palmer House, Chicago, Ill., Feb. 15 to 17.

Cotton Research Clinic, The Carolina, Pinehurst, N. C., Feb. 17 to 19.

Phi Psi, 51st annual convention, The Carolina, Pinehurst, N. C., Feb. 25 to 27.

AATCC, New York Sect., Hotel Statler, New York, Feb. 26.

National Assn. of Hosiery Manufacturers, annual meeting, Claridge Hotel, Atlantic City, N. J., May 3 and 4.

Hosiery Industry Conference, annual conference, Claridge Hotel, Atlantic City, N. J., May 3 and 4.

Southern Municipal and Industrial Waste Conference, N. C. State College, Raleigh, N. C., March 18 and 19.

Alabama Cotton Manufacturers Assn., annual convention, Hotel Buena Vista, Biloxi, Miss., March 18 to 20.

ASQC, Carolinas Section, spring meeting, Clemson College, Clemson, S. C., April 2.

CMA of Georgia, annual convention, Boca Raton Hotel Club, Boca Raton, Fla., April 7, 8, and 9.

LTI Alumni Meeting, Haddon Hall, Atlantic City, N. J., April 18.

ACMI, annual meeting, Jung Hotel, New Orleans, La., April 22 to 24.

AATCC, New York Sect., Swiss Chalet, Rochelle Park, N. J., April 23.

AMA, manufacturing conference, Hotel Statler, Cleveland, Ohio, April 26 to 28.

American Textile Machinery Exhibition, sponsored by American Textile Machinery Association, Atlantic City Auditorium, Atlantic City, N. J., April 26 to 30.

The Fiber Society, spring meeting, Institute of Textile Technology, Charlottesville, Va., May 5 and 6.

American Society of Training Directors, annual conference, Schroeder Hotel, Milwaukee, Wis., May 5 to 7.

Swiss Industries Fair, textile machinery exposition, Basel, Switzerland, May 8 to 18.

NACM, 100th anniversary, Somerset Hotel, Boston, Mass., May 19 and 20.

AATCC, New York Sect., Swiss Chalet, Rochelle Park, N. J., May 21.

SCTMA, annual convention, The Cloister, Sea Island, Ga., May 27 to 29.

International Congress of Man Made Textiles, Paris, France, May 31 to June 3.

STA, annual convention, Ocean Forest Hotel, Myrtle Beach, S. C., June 10 to 12.

Canadian Textile Seminar, Queen's University, Kingston, Ontario, Sept. 9 to 12.

The Fiber Society, fall meeting, in conjunction with Textile Technical Federation of Canada and Canadian Assn. of Textile Colorists, McGill University, Montreal, Canada, Sept. 13 and 14.

AATCC, national convention, Atlanta Biltmore Hotel, Atlanta, Ga., Sept. 15 to 18.

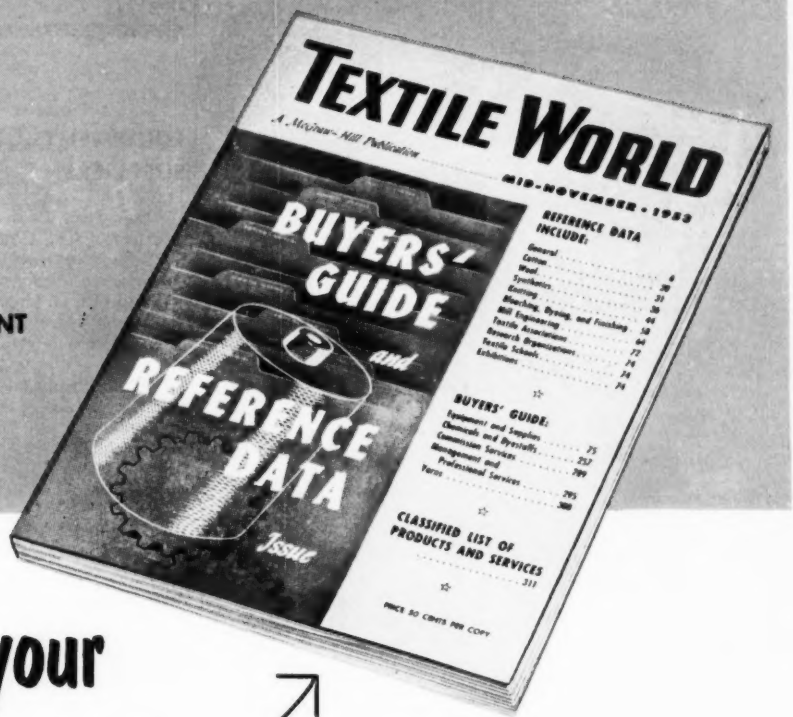
Industrial Packaging and Materials Handling Exposition, Competition, and Short Course, Chicago Coliseum, Chicago, Ill., Sept. 27 to 30 (course), Sept. 28 to 30 (exposition).

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 4 to 8.

N. C. Textile Mfg. Assn., annual meeting, Carolina Hotel, Pinehurst, N. C., Oct. 14 and 15.

TO MEN IN TEXTILE MILLS
associated with:

MANAGEMENT
PRODUCTION
PURCHASING
MAINTENANCE
QUALITY CONTROL
PRODUCT DEVELOPMENT
RESEARCH
ENGINEERING



. . here is your HANDY HELPER

Examine this BUYERS' GUIDE and REFERENCE DATA Issue, sent to you as part of your subscription to TEXTILE WORLD. See for yourself, the abundance of useful information to help you cut costs, improve efficiency, increase production, solve problems, and make better products.

The Reference Data Section contains 73 pages of useful production and reference information, for example, the Yarn-Conversion Table on page 6 and the Loom-Production Table on page 18. Pages 6 through 71 contain a wealth of similar data on Cotton, Wool, Synthetics, as well as helpful information on Knitting, Bleaching, Dyeing, Finishing, and General Mill Engineering.

In the back of this issue on pages 311 to 379, you'll find a Classified List of companies supplying products and services to the industry. This list contains over 2000 products and services, *and is the only one of its kind in existence!*

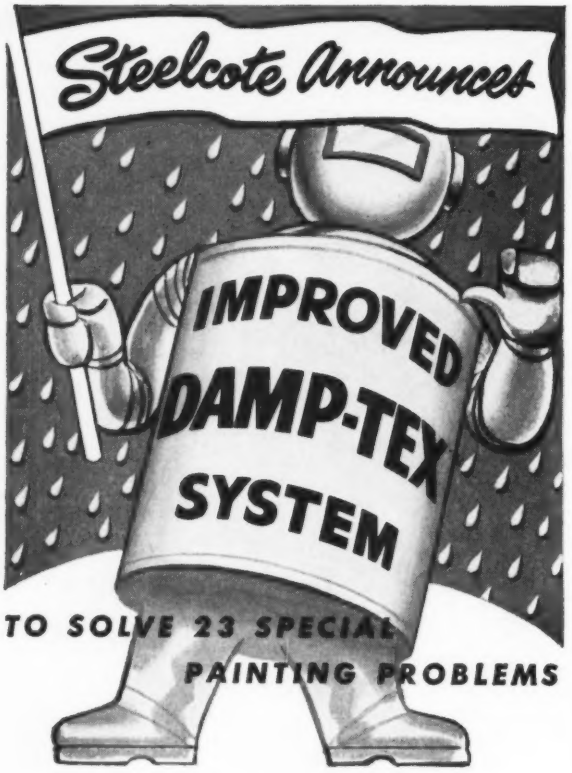
Besides all this, 265 companies have supplemented their product listings with detailed information about their products in their advertising space. Such information is page-referenced in the Classified List, thereby giving you a fuller story on a product or a service.

After you have examined this issue, and evaluated its time-saving features, remember to . . .

KEEP IT HANDY. . . **IT WILL NOT BE REPLACED UNTIL MID-NOVEMBER 1954!**

TEXTILE WORLD ABP ABC

330 West 42nd St., New York 36, N Y.



Only Damp-Tex among wet surface enamel brands offers a system of painting that meets 23 special conditions. Non-toxic surface without flavor tainting odor? New non-yellowing whiter white? Want 30-minute drying? Extreme hardness and resistance to mildew acids and alkali? Just specify your special problem. The Damp-Tex System may give you the tailor-made answer.

FOR SURVEY OF YOUR PLANT, MAIL COUPON BELOW

LIQUID, PORCELAIN-LIKE
DAMP-TEX FOR
WET
OR DRY SURFACES
CLIP TO YOUR LETTERHEAD AND MAIL
Please send representative to survey our plant and recommend the most advanced solutions without obligation.
A
STEELCOTE MFG. CO.
GRATIOT & THERESA
ST. LOUIS 3, MO.

Canadian Industrial Distributor

G. H. WOODS & CO., LTD., TORONTO

228 For more information, write direct or use Reader Service post card.

NEWS ABOUT Suppliers

EQUIPMENT SUPPLIERS

Acme Steel Products Div., Acme Steel Co., Chicago, Ill., has appointed Roy C. Camp Southeastern district sales manager and Dan C. Jorgensen special sales representative for the Southern area.

Alfred Archambault & Sons, Inc., Valley Falls, R. I., has acquired a new, one-story building on John Street, Lincoln, R. I. Plans are to transfer operations to the new plant shortly.

Alvey Conveyor Mfg. Co., St. Louis, Mo., has appointed Calvin A. Burton to the position of general sales manager. He will be located in the Alvey home office, 9301 Olive St. Road, St. Louis 24, Mo.

Arlington Machine Works, Arlington, Mass., has appointed H. E. Linderson, Providence, R. I., as New England representative.

The Baker-Raulang Co., Industrial Truck Div., Cleveland, Ohio, has appointed Russel A. Moore as field applications engineer, specializing in side-loading fork truck applications.

The Bristol Co., Waterbury, Conn., has made Ernest Nuber sales manager, Instrument Div.

H. W. Butterworth & Sons Co., Bethayres, Pa., has assigned C. Eugene Hunter and James E. Butterworth, Jr., to the Southern office at Charlotte, N. C.

Chain Belt Co., Milwaukee, Wis., has announced the resignation of George D. Gilbert, secretary and director. The resignation follows 35 years of continuous service with the organization.

Clark Equipment Co., Buchanan, Mich., has revamped its dealer organization in the South to handle its newly acquired Ross straddle carriers and fork truck lines. Dealers affected by the plan are Industrial Truck Sales & Service Co., Greensboro, N. C.; Lukas Equipment Co., Columbia, S. C., M-H Equipment Co., Birmingham, Ala.; Dempster Brothers, Inc., Knoxville, Tenn.; Whitmore Industrial Trucks, Tampa, and Equip Co., Inc., Miami, Fla.

R. A. PRITZKER has joined Colson Corp., Elyria, Ohio, as vice president in charge of manufacturing.

Combustion Control Corp., Boston, Mass., has appointed Arne Lovendahl as manager of its Philadelphia area office.

Continental-Diamond Fibre Co., Newark, Del., has appointed O. E. Anderson to its technical staff. A specialist on materials used in electrical insulation, including laminated plastic products and flexible coated fabrics, Mr. Anderson will function as technical service representative for the company's Silicone, Teflon, and Polyester flexible sheet and tape products.

W. D. Dodenhoff Co., Greenville, S. C. has appointed Julian T. Pool sales representative for Georgia, Alabama, and Mississippi. Mr. Pool will make his headquarters in LaGrange, Ga.

J. Eisenberg, Inc., New York, N. Y., has appointed J. Walter Bliss to cover the New England territory in the sales of wool and synthetics garnetts.

Keep your BOBBINS in TOP CONDITION at LOWER COST with the

No. 88 NASH Automatic BOBBIN REFINISHER

• This time-tested machine was born of a need . . . designed to keep bobbins in perfect condition with a highly polished surface, and assure *a better run-off of yarn.* The Nash 88 has won highest praise from users everywhere. It assures uniform, smooth-surface reconditioning with a saving of labor cost.

HERE ARE SOME OF ITS FEATURES:

- Handles most types of flanged bobbins . . . easily adjusted to range of shapes and sizes.
- Separate burnishing assembly produces a highly-polished surface of uniform quality.
- Abrasive action takes place on barrel portion inside flanges and top radius of flanges.
- Its high speed (10 bobbins per minute) requires only minimum set-up time.
- Nash quality means fine performance and low maintenance cost.

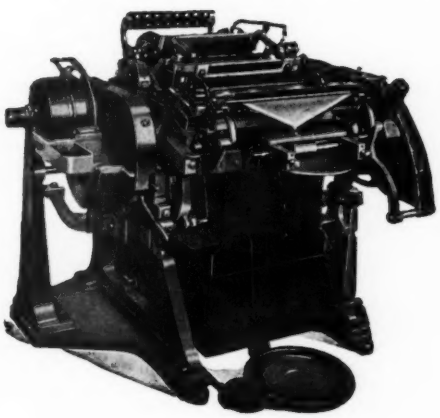
Nash also builds Automatic Bobbin Sanders, Automatic Quill Polishers, Automatic Round Stock Sanders, and Special-Purpose Machinery.

Write for Complete Descriptive Literature

J. M. NASH COMPANY
Dept. 88, 2364 No. 30th Street
Milwaukee 10, Wisconsin

WORLD-FAMOUS

SCHLUMBERGER COMB



for French-Type
Worsted Mills

OUTSTANDING for ready accessibility of all operating parts (including cylindrical comb) and for remarkable cleanliness of product. Settings made quickly.

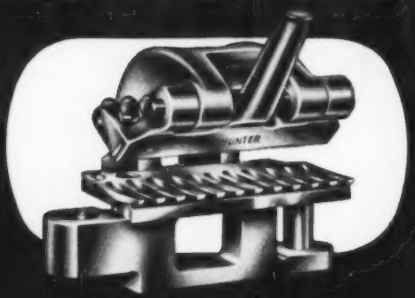
Also other worsted preparatory machinery

U. S. and Canada Representative: TEXPLANT CORP., 65 Bedford St., Stamford, Conn.

N. SCHLUMBERGER & CIE
GUEBWILLER, ALSACE, FRANCE

Founded 1808

NOW THIS UNIVERSAL TENTER CLIP



serves for regular feed or overfeed without pins

Get the facts about the advanced new Universal Tenter Clip*—developed by James Hunter Machine Company, made and sold in United States and Canada exclusively by Marshall and Williams.

ADVANTAGES: Operates on any standard tenter frame as a regular clip or will accommodate overfeeding if frame is equipped with Hunter overfeed device. Can be instantly changed from regular feed to overfeed without shut-down of tenter frame. No changing of chain required—no alteration of machine necessary. Comb-like plate on clip gives uniform and complete drying of selvage. The cost of this clip and overfeed equipment is very reasonable. Doing away with multiple tentering units reduces floor space requirement by one-half—with all resultant savings. Operating speeds are the same as with conventional clips. Uniform and accurate overfeeding up to 20% easily obtainable.

See this new Universal Tenter Clip in operation with M & W High Speed Tenter Frame in Booths 212-217 Atlantic City • April 26-30

Other M & W Products: Swing Plaiters, Let-Off Stands, Batchers, Tenterettes, Complete Line of Tenter Clips. Send for complete data — without obligation.

*Dungler System

M & W

MARSHALL and WILLIAMS CORPORATION

PROVIDENCE, R. I. • GREENVILLE, S. C. • NEW YORK, N. Y.

News About **SUPPLIERS** (Continued)

James Hunter Machine Co., North Adams, Mass., has added Harry F. Creegan, recent Textile Div. manager of the Rodney Hunt Machine Co., to its staff.

Karl H. Inderfurth Co., Charlotte, N. C., has appointed John F. Veach as its representative. Mr. Veach will be located in the Charlotte office.

Magnesium Co. of America, East Chicago, Ind., has appointed F. E. Bennett Co., Portland, Ore., as sales representative in Oregon.

Meadows Mfg. Co., Atlanta, Ga., has made J. Carlile Martin, formerly with Whitin Machine Works, vice president and sales manager.

Miniature Precision Bearings, Inc., New York, N. Y., has made Richard I. Kern Western manager. His headquarters will be the company's new plant at Santa Barbara, Calif.

Minneapolis-Honeywell Regulator Co., Industrial Div., Philadelphia, Pa.—Schedules for industrial-instruments maintenance and repair courses for the first half of 1954 have been announced. A 14-week class including instruction in new devices will be held from Feb. 15 to May 21. Two five-week courses will start Jan. 4 and April 26. Shorter courses will start Feb. 15, March 8, April 5, and June 7.

National Vulcanized Fibre Co., Wilmington, Del., has promoted Harry C. Hackett to staff sales manager and James O. Otis to sales manager.

ROBERT F. McCLELLAN has been appointed vice president and general manager of Yocum Faust Ltd., London, Ont., Can., a Nopco Chemical Co. subsidiary.

Fielden Instrument Div., Robertshaw Fulton Controls Corp., Philadelphia, Pa., has appointed Lee E. Cuckler manager of the engineering dept.

Rodney Hunt Machine Co., Orange, Mass., has made W. C. Davis & Associates, Atlanta, Ga., agent in the Southeast for its Process Equipment Div.

Tower Iron Works, Providence, R. I., has appointed Waldo W. Smith as general manager, succeeding the late Howard R. Chase.

Westinghouse Electric Corp., Pittsburgh, Pa., has appointed L. J. Fitzpatrick assistant to the general manager of the Lamp Div. in Bloomfield, N. J.

CHEMICAL & YARN SUPPLIERS

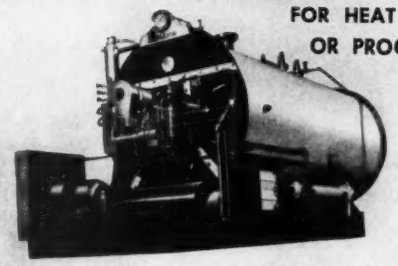
Allied Chemical & Dye Corp., National Aniline Div., New York, N. Y., has appointed Leon W. Seigle and Fred B. Johnson as manager and assistant manager, respectively, of Intermediate Sales. Dr. Seigle and Mr. Johnson will make their headquarters at 40 Rector St., New York. Carleton Ellis, Jr., has been appointed director of sales for all Plaskon products, of the Barrett Div., which purchased the Plaskon Div. of Libbey-Owens-Ford Glass Co. recently.

American Cyanamid Co., Calco Chemical Div., Bound Brook, N. J., has made William T. Ries production manager of its Newark plant. Mr. Ries will continue his present duties as production manager of Calco's rubber chemicals and pharmaceutical departments at the Bound Brook plant. Dr. T. S. Leary has been named chief chemist of the chemicals department. Emil Hladky has been made assistant chief chemical engineer.

American Viscose Corp., Philadelphia, Pa., has assigned Francis Edward Price, Bethel, N. C., to the Charlotte, N. C., office as a representative for textile-chemical sales in the Southern territory. The company has opened an office at 2304 First National Tower

STEAM

FOR HEAT
OR PROCESS



A complete steam plant backed by undivided responsibility • Shipped completely assembled • More than 80% thermal efficiency guaranteed • 4-pass design provides 5 sq. ft. of heating surface per b.h.p. • Built-in induced draft eliminates need of expensive chimney • Simple installation • Clean, quiet operation • Heavy-duty construction assures long-lived dependability

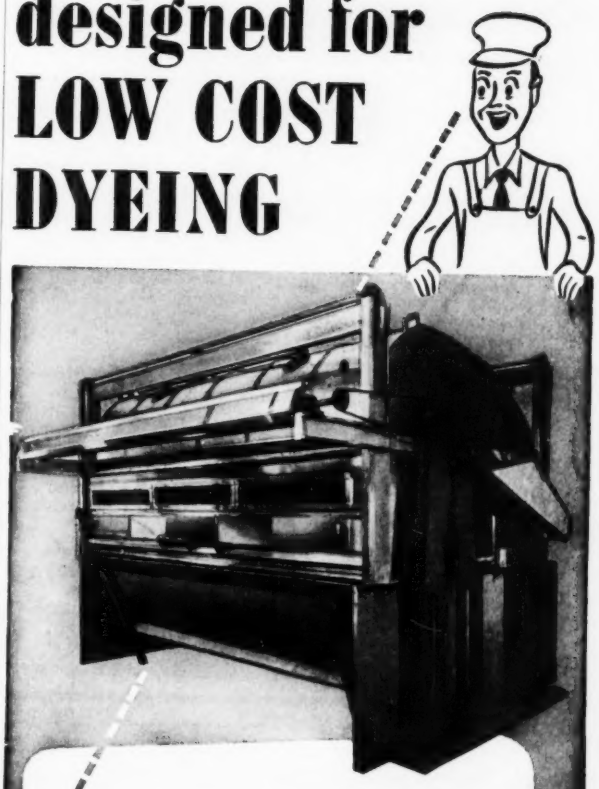
Superior Steam Generators are manufactured in 18 sizes from 20 to 600 b.h.p. for pressures up to 250 p.s.i. or for hot water heating.

For complete details, write for Catalog 618

...ERIOR COMBUSTION INDUSTRIES, Inc.
Factory: Emmaus, Pa.
Exec. Offices: Times Bldg, Times Sq., New York N. Y.

SUPERIOR STEAM GENERATORS

3 Features designed for LOW COST DYEING



1 This Dyebox is Fully Enclosed

— to keep heat and moisture where they belong, in the box; to save fuel, steam, water and dyestuffs; . . . to end dyehouse fog; to increase production per man hour; to give you better work.

2 This Dyebox is Stainless Steel

. . . to clean in seconds with a quick rinse; . . . to eliminate boil outs; . . . to end discoloration of fabric; . . . to change from dark to light runs in a few seconds; . . . to give you more runs per day at lower cost.

3 This Dyebox is Blickman Built

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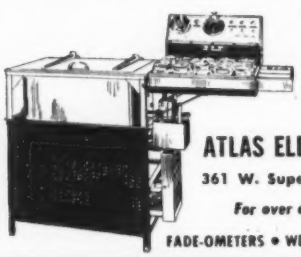

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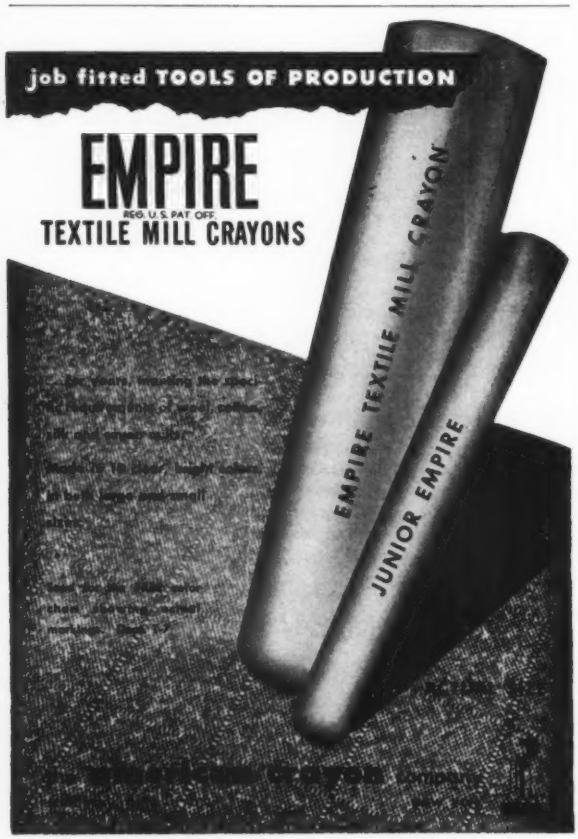

News About **SUPPLIERS** (Continued)

DR. THOMAS H. VAUGHN has been elected vice president in charge of research and development of Colgate-Palmolive Co., Jersey City, N. J. Dr. Vaughn left a similar position at Wyandotte Chemicals Corp.

Building, Akron, Ohio. Cyril Sumner, Jr., is in charge of the office, under Frank T. Williams, of New York, manager of the rayon-tire-yarn sales division.

Atlantic Chemical Corp., Passaic, N. J., has appointed Robert F. Fritz sales representative to cover Pennsylvania, Maryland, Delaware, and Southern New Jersey.

Atlas Powder Co., Wilmington, Del., has named Howard W. Dellard to head its Chicago chemical district sales office. Mr. Dellard succeeds Harry B. Paul, who has been transferred to direct Wilmington, Del., chemical district sales.

Carbide & Carbon Chemicals Co., Div., Union Carbide & Carbon Corp., New York, N. Y., has made John H. McCormick, Charlotte, N. C., district sales manager of the Textile Fibers Dept.

Colgate-Palmolive-Peet Co., Jersey City, N. J., has shortened its name to Colgate-Palmolive Co.

Diamond Alkali Co., Cleveland, Ohio, has promoted two veteran executives to vice presidencies: W. H. McConnell, director of sales, and C. E. Lyon, works manager of Diamond's electrochemical plant at Houston, Tex.

E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., has made Dr. James Belleza, Jr., manager of the nylon technical section in the Textile Fibers Dept. He succeeds Edgar H. Bleckwell, now production section manager of nylon manufacturing. Andrew A. Smith, manager of the Waynesboro, Va., acetate plant, has succeeded Dr. Bellezza as manager of the rayon technical section, and L. D. Simmons has been advanced to manager there.

Emery Industries, Inc., Cincinnati, Ohio, has appointed Alexander Moore to its Development and Service Dept.

Geigy Co., Inc., New York, N. Y., has merged into its affiliate, Geigy Chemical Corp. A newly designated division, Geigy Dyestuffs, will operate Geigy's eight dyestuff branches in the U. S. and Canada, without change in present personnel.

General Dyestuff Corp., New York, N. Y., has made Lawrence S. Thompson manager, Dyestuff Technical Dept. to replace D. E. Marnon who has resigned.

Glass Fibers Inc., Toledo, Ohio, has made Richard H. Garnett a textile sales engineer assigned to the company's New York office.

Glyco Products Co., Inc., 26 Court Street, Brooklyn, N. Y., has been granted the trademark "Tetrine" by the U. S. Patent Office. This name covers ethylenediamine tetraacetic acid and its salts as sequestering, chelating and complexing agents.

Hercules Powder Co., Inc., Wilmington, Del., has established a new rosin amine sales and development group and two new assignments for technical salesmen. The rosin amine sales and development group will be under the managership of Emile Pragoff, Jr. Charles Moss is being transferred from the Wilmington technical service group to the New York territory as a technical sales representative. Fred Donavan is being transferred from technical sales work in the New York territory to a similar position in the San Francisco territory.

The Hilton-Davis Chemical Co. Div., Sterling Drug, Inc., Cincinnati, Ohio, has appointed George N. Nickles coordinator of its textile-dyestuff division.

E. F. Houghton & Co., Philadelphia, Pa., has plans for an expanded research program,

News About **SUPPLIERS** (Continued)

including a further addition to its laboratories.

Libbey-Owens-Ford Glass Co., Toledo, Ohio, has established a district sales office of the Fiber Glass Div. in St. Louis, Mo., with Arthur S. White as district manager.

John B. Moore Corp., Nutley, N. J., has made The Pioneer Salt Co., Philadelphia, Pa., sales agents in eastern Pennsylvania and south New Jersey. Western Canadian sales will be handled by Donner & Co., Winnipeg, Man. Sales in lower New York State and New York City will be handled by staff engineers under the general supervision of I. Q. Sarlin, process engineer for the company.

Onyx Oil & Chemical Co., Jersey City, N. J., has appointed John E. Larkin technical sales representatives to cover western New England and upper New York, replacing Malcolm P. Coulman.

Pittsburgh Coke & Chemical Co., Pittsburgh, Pa., has made Thomas P. Caldwell dyestuff sales representative in Greenville, S. C.

A. E. Staley Mfg. Co., Decatur, Ill., has promoted three manufacturing department executives: Louie E. Doxsie, methods superintendent; James G. Dustin, former senior chemical engineer, to succeed Mr. Doxsie as production superintendent; and Oliver R. Etheridge, technical consultant.

Westvaco Chemical Div., Food Machinery & Chemical Corp., New York, N. Y., has promoted Ray C. Tower, recently returned from a two-year tour of active duty with the U. S. Navy, to assistant divisional manager, phosphate sales, with headquarters at New York. Mr. Tower succeeds John Peterson, who has been appointed district sales manager in charge of the company's Chicago office.

Wyandotte Chemical Corp., Wyandotte, Mich., has made Walter L. Rippeteau general product manager, organic chemicals, in the Michigan Alkali Div. Mr. Rippeteau will have over-all responsibility for the sale of all organic products, including synthetic detergents, industrial organic chemicals, antifreeze glycol and other specialty products.

OTHER SERVICES

C. A. Litzler Co., Inc., 11621 Detroit Ave., Cleveland 2, Ohio, has been formed to serve as designers and consultants in continuous-web and monofilament processing systems.

NACM, Boston, Mass.—Malcolm G. Chace, Jr., president, Berkshire Fine Spinning Associates, Inc., has been elected chairman of the board of the Northern Textile Assn. and NACM.

Philadelphia Textile Institute, Philadelphia, Pa., has appointed Dr. Richard S. Cox dean emeritus. A. Ward France, head of the wool department and dean of the evening school, has become the new dean of faculty. Donald B. Partridge, director of admissions and placement, is the new dean of students. Five new appointments to the faculty were announced: Dr. William A. Endriss, associate professor of microscopy and testing; George J. Gradel, instructor of chemistry; Robert Bokum, professor in charge of the evening school; Miss Martha E. Jungerman, a Fulbright student at Leeds University, Manchester, England, last year, who has returned to the faculty and been given complete charge of the color dept., and Ercal Kaiser who has been put in charge of jacquard.

Rayon Information Center, New York, N. Y., has made Benjamin Wood, formerly vice president of the William Esty Co., Inc., executive director.

Robinette Research Laboratories, Inc., 16 East Lancaster Ave., Ardmore, Pa., has been formed to provide production and process-development service to textile, chemical, and other industries. Hillary Robinette is president; George J. Volz, vice president and secretary.

Douglas Williams Associates, New York, N. Y., has added Dr. Robert H. Schaffer to its staff. Dr. Schaffer, an industrial psychologist, was formerly a counsellor in the Div. of Testing and Guidance at City College of New York.

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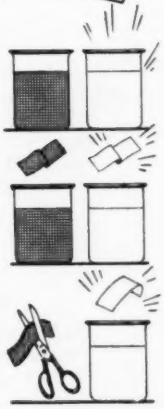
BEAKER #2
(one liter) Same contents as Beaker #1 but with 5 cc of Versene T added.

PROCEDURE BY STEPS

First, add the caustic to each beaker. Then, to Beaker #2, add 5cc of Versene T. Heat both beakers to boiling point and add the 5cc of the Ferric Chloride to each beaker. Note the difference between the solutions. Beaker #1 (containing no Versene T) is muddy with rust. Beaker #2 is water-white.

Next, put a small strip of clean white cotton cloth in each beaker and boil a few minutes. Remove strips and rinse with water. Note the difference. Versene T has kept its strip white in spite of the iron that was added.

Last, take the other rust-stained strip, cut in half and place one-half in Beaker #2 containing the clear solution with the Versene T in it. Boil for a few minutes. Remove, rinse and compare. The Versene T has now restored the rust-stained cloth to its original whiteness.



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NEWS ABOUT *Mills*

Cotton Mills

Alice Mfg. Co., Easley, S. C., has placed an order with Hunt Loom & Machine Works, Inc., for looms for its new Elijean Div. This new plant will have 40,000 spindles in operation this spring.

Androscoggin Div. of Bates Mfg. Co., Androscoggin, Me., recently completed a modernization of its drives throughout the mill. New electric motors have been installed.

Carlton Mills, Inc., Cherryville, N. C., has purchased the Freida Plant of Beaunit Mills, Inc., at Crowder's Mountain, N. C. The name of the mill will be changed to the Carlton Div. of Carlton Mills, Inc. Operations will begin when overhauling has been completed.

Clifton Mfg. Co., Mill No. 5, Converse, S. C., is installing 560 Draper X-2 looms. The cost of the program is placed at $900,000. A new water wheel is being installed. Five others are already in operation. This project is costing about $55,000.

Coats & Clark, Inc., Toccoa, Ga., has let the contract to Bahnson Co., Winston-Salem, N. C., for the complete air conditioning of all departments in its thread-finishing plant.

Cone Mills Corp., Reidsville, N. C., has awarded a $150,000 contract to King-Hunter, Inc., Greensboro, N. C., for an addition to its card room at the Edna plant.

Durst Plant of Greenwood Mills, Greenwood, S. C., has started limited operations. The installation of new machinery is being completed. The cost of this project is $6,000,000.

Dyersburg Cotton Products, Inc., Dyersburg, Tenn., is installing a new air-change system that will permit an adequate control of humidity in the cotton-winding and -spinning departments.

Guadalupe Valley Cotton Mills, Cuero, Tex., is erecting a cotton mill unit at a cost of $450,000. George Blackburn, Cuero, is in charge of the project.

Griffin Rug Mills, Dalton, Ga., has taken over a new building to be used to increase its rug and carpet production.

Johnston Mfg. Co., Charlotte, N. C., has awarded the contract to Bahnson Co., Winston-Salem, N. C., for the installation of air conditioning.

Marion Mfg. Co., Marion, N. C., is converting 192 of its looms from 44- to 50-in. weaving.

North American Lace Co., Philadelphia, Pa., has let a $9,000 contract for alterations to its office building to Jack S. Steele Construction Corp., 1300 W. Hunting Park Ave., Philadelphia.

Opp Mills, Opp, Ala., is building a new weave room that measures 140x160 ft. The plant will have 250 looms in operation when production is started but the number will be increased to 1,000. About 4,000 spindles will be installed.

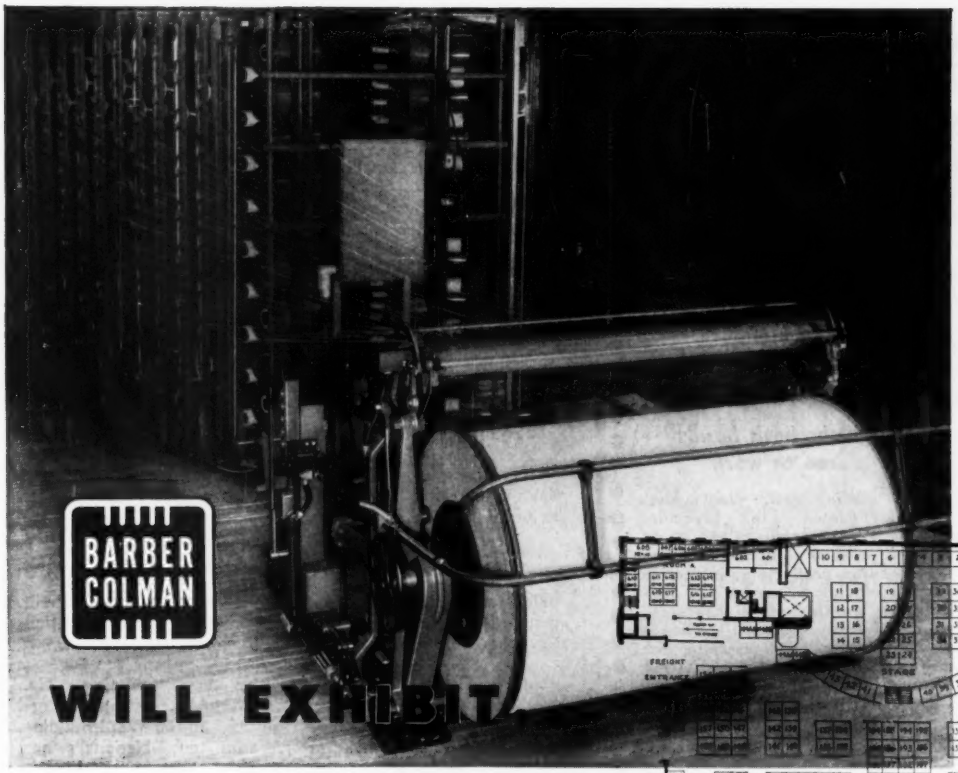
Alexander Smith, Inc., has awarded the contract to Walter Kidde Co., Inc., for the construction of a new warehouse in Columbus, Ohio.

Sulphur Springs Cotton Mill Co., Sulphur Springs, Tex., is reconstructing its plant at a cost of $225,000.

Textron Southern has sold its Vass, N. C., plant to W. R. and W. F. Jones of Humboldt, Tenn. Coarse cotton products will be produced.

United Merchants & Manufacturers, Inc., New York, N. Y., plans to improve and expand its newly acquired A. D. Juilliard mill at Aragon, Ga.

Valley Mills, Inc., Patterson, N. C., has installed a new five-roll, double-draft spinning frame.



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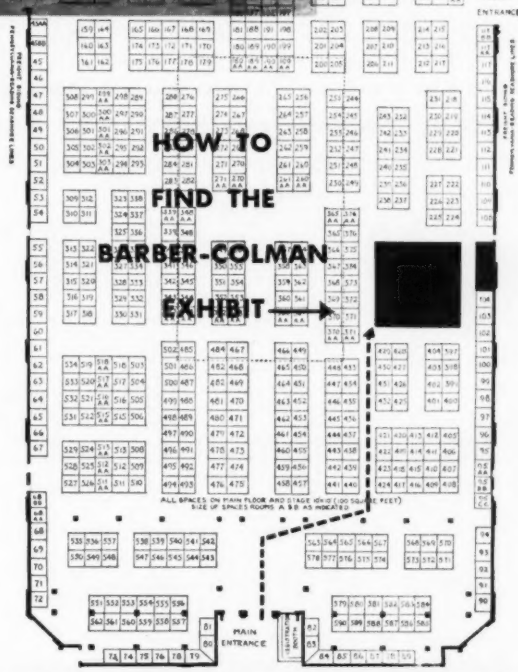

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News About MILLS (Continued)

Woolen and Worsted Mills

American Pad & Textile Co., Greenfield, Ohio, has purchased the sportswear division of C. H. Masland & Sons, Carlisle, Pa. Operations will be transferred to the Greenfield mill.

Belmont Woolen Yarn Mills, Woonsocket, R. I., is changing its company name to B. W. Y. Co.

Lockport Felt Co., Newfane, N. Y.—A $300,000 bond issue for the expansion of this company's facilities in Mississippi has been approved by the taxpayers of Starkville, Miss. Construction of the 30,000-sq.-ft. building is expected to start soon. Raymond J. Capen has been named superintendent of the new plant.

George E. Mabbett & Sons, Plymouth, Mass., now owned by Bernard Goldfine, will begin production in about three months.

C. H. Masland & Sons, Carlisle, Pa., is building an addition containing about 100,000 sq. ft. of floor space for warehouse service.

Synthetics Mills

Delaware Mills, Inc., has opened its new $140,000 plant at Frederica, Del.

Duplan Corp., New York, N. Y., has sold its plant in Hazelton, Pa., to George Friedland of Philadelphia, for a reported $400,000. Duplan will retain some space for its jacquard sample department.

International Looms, Inc., Elizabeth, N. J., has moved its plush department, including preparatory equipment, to its plant in Clinton, S. C., where an addition has been built. Dyeing and finishing operations will remain in Elizabeth.

National Spinning Co., Washington, N. C., has opened an office in the Ward Building, Washington. National's new spinning mill at Washington will start operations in a few months.

Rose Mills, Inc., Philadelphia, Pa., is building a new $10,000 shipping dock. Wilmer Buckman, 1218 Pratt St., Philadelphia, is the contractor.

Knitting Mills

Adams-Millis Corp., High Point, N. C., has constructed a $200,000 building to fill the entire space between its existing plant buildings. The new structure will house the administrative offices and certain finishing operations.

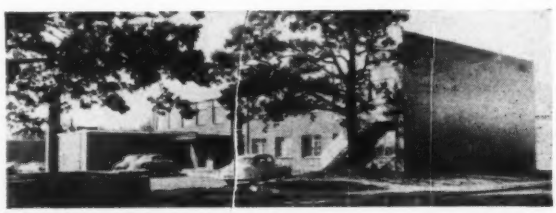
Alden Mills, Meridian, Miss., is erecting a $100,000 mill addition.

Barberry Knitting Mills, Laconia, N. H., is constructing a two-story building.

Belding-Corticelli Co. Ltd., Montreal, Que., has taken over the plant of Dominion Glove Co. Ltd., Way's Mills, Que.

Belmont Hosiery Co., Franklin, N. H., will no longer maintain its treasurer's office in Franklin. George G. Wells, treasurer of the firm, is now located in Belmont, N. H.

Black Mountain Hosiery Mills, Inc., Black Mountain, N. C., has moved into its new $60,000 plant. The all-metal



SHUFORD MILLS, INC., Hickory, N. C., has moved its main office and laboratory into this recently remodeled building adjacent to the Hickory mill group. New equipment has been installed in the laboratory.

News About **MILLS** (Continued)

structure contains 12,000 sq. ft. of floor space and is insulated with glass fiber. The boiler room at the rear measures 40x20 ft. Benjamin R. Hunter is the president.

H. E. Bradford Co., Inc., Bennington, Vt., has completed an extensive remodeling program that included interior decoration, boiler-room construction, and boiler installation.

Burlington Mills Corp., Greensboro, N. C., which recently purchased Sarfert Hosiery Mills, Philadelphia, is moving Sarfert's equipment South to combine its operations with other plants of the company.

William Carter Co., Senatobia, Miss., has awarded the contract to McDaniel Bros. Construction Co., Jonesboro, Ark., for the construction of its new plant at Senatobia. The new plant will contain 250,000 sq. ft.

Carlton Mills Co., Philadelphia, Pa., has let the contract to Ben Scarcia, 959 Fillmore Ave., Philadelphia, for a two-story brick addition to its mill and office building.

Debonaire Hosiery Mills, Inc., New York, N. Y., recently purchased 75% of the stock of Kent Hosiery Mills, Inc., Chestertown, Md. The purchase was made to expand Debonaire's present operations. Seymour Schechter was elected president and Alvin W. Drucker, secretary-treasurer.

E-Z Mills, Inc., Cartersville, Ga., is nearing completion of its 33,000-sq.-ft. stock and shipping department. The space formerly occupied by the stock department will be used for the expansion of other departments. E-Z Mills is concentrating its manufacture in Cartersville.

Jantzen Knitting Mills, Portland, Ore., has awarded the contract for a new plant at Seneca, S. C., to Daniel Construction Co., Greenville, S. C., Air conditioning is being installed throughout the plant. The company is changing its corporate name to Jantzen, Inc.

Lambert Hosiery Mills, Inc., Lambertsville, N. J., has opened a branch at 350 Northwest 75th St., Miami, Fla., with 12 full-fashioned machines. Otto Schuldecker is superintendent of this plant.

Morgan Clan Knitting Mills, Newark, N. J.—Albert R. and Anna Woerner have acquired the full interests of their former partners in this plant.

Nolde & Horst, Reading, Pa., is starting a new $125,000 modernization program at its plant on North 9th St. The plant at Womelsdorf, Pa., will be discontinued and the capacity at Reading will be doubled.

Norwich Knitting Co., Norwich, N. Y., has let the contract to J. P. Rogers Co., Smithfield, N. C., to build an addition to its plant at Clayton, N. C. The addition will contain about 10,000 sq. ft. of space and will provide the Clayton plant with a total of about 60,000 sq. ft. of finishing space.

Reamstown Hosiery Mills, Mohnton, Pa., has purchased 40 400-needle Fidelity machines for women's hosiery. They will be installed in the plant at Reamstown, Pa.

Sand Knitting Mills, Berlin, Wis., formerly of Chicago, is now operating in its new plant.

Shenandoah Knitting Mills, Shenandoah, Va., a subsidiary of Chadbourn Mills, Charlotte, N. C., is installing 36 knitting machines in its new addition. Bahnsen Co., Winston-Salem, N. C., is installing the air-conditioning system.

Wonder-Knit Corp., New York, N. Y., is considering sites in Galax, Va., for the establishment of a new knitting plant.

Dyeing and Finishing Plants

Borg Fabrics Ltd., Elmira, Ont., has approved plans for a one-story addition containing about 10,000 sq. ft. of floor space. Completion is expected early this year.

Duro Fnishing Corp., Fall River, Mass., has let the contract to Ciccone Construction Co. for the construction of a new building. New equipment to be installed includes: six new

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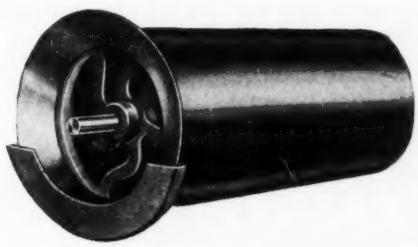

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News About MILLS (Continued)

jigs, one dye pad, two tubers, one Palmer unit, one set of dry cans, and one finishing mangle. There will also be a machine shop in the new building.

Fulton Bag & Cotton Mills, Atlanta, Ga., has completed a new finishing plant that will double its present finishing capacity. The new building is three-stories, with about 75,000 sq. ft. of floor space. Fluorescent lighting is used throughout. A. K. Adams & Co., Atlanta, was the architect-engineer.

Grace Bleachery, Grace, S. C., the finishing plant of Springs Cotton Mills, is scheduled to have its $2,000,000 addition ready for operation by this April. The capacity of the plant will be increased about 25% by the addition of a bleaching range, a dyeing range, and a mercerizing unit. Contract for roofing and sheet-metal work has been awarded.

Greenwich Printing & Dyeing Co., East Greenwich, R. I., has added a complete plissé unit and a friction calender for finishing chintz.

Kendall Co., Boston, Mass., has awarded the contract to Daniel Construction Co., Greenville, S. C., for the construction of a new finishing plant at Bethune, S. C.

Lee Dyeing Co., Johnston, N. Y., has its new plant near Butner, N. C., in operation dyeing tricot fabrics.

U. S. Finishing-Aspinook Corp., following its recent merger, has extensive plans under way for the modernization of all properties located at Norwich, Jewett City, and Sterling, Conn.; Adams, Mass., and Hartsville, S. C.

Miscellaneous Mills

American Auto Felt Corp., Grand Rapids, Mich., has obtained a permit for the construction of a new one-story addition to cost about $20,000, exclusive of equipment.

E. T. Barwick Mills, Inc., Dalton, Ga., has begun production at its new mill at Lafayette, Ga.

Boardman Co., Inc., Philadelphia, Pa., has let an $18,000 contract to L. Petrellis, 126 Rockland Ave., Marion, Pa., for the construction of a storage building at the company's Manayunk plant site. The one-story building measures 60x72 ft. M. A. Boardman is supervising the project.

Certain-teed Products Corp., Ardmore, Pa., has awarded the general contract to Tankersley Construction Co., Oklahoma City, Okla., for a new felt mill at its plant at Pryor, Okla. The new plant will have a capacity of about 50 tons of dry felt per day.

Foreign Mills

Catalina, Inc., Los Angeles, Calif., has completed arrangements for the manufacture of Catalina swim suits in New Zealand. The license has been granted to Lane Walker Rudkin Ltd., Christchurch, N. Z.

Cleckheaton Ltd., formerly of England, has shipped its complete worsted spinning plant and a nucleus of employees to Australia where a new plant has been set up at Shepparton, Victoria. An addition of 15,000 sq. ft. to the present 36,000 is planned.

Egyptian Ministry of Finance, Cairo, Egypt, has placed orders totaling £65,000 with Platt Bros. Ltd., Oldham, England, for equipment for a new cotton-testing laboratory at Alexandria. The main function of this laboratory is to determine the length and strength of staple in all consignments of cotton leaving Egypt and to issue certificates of guarantee.

Karachi, Pakistan—The Pakistan government plans a multi-million-dollar laboratory for fundamental research on cotton. Its first responsibility will probably be improving the poor quality of locally grown cotton and making better yarn and cloth.

Mexico City, Mexico—A joint Japanese-Mexican spinning mill will be built in Mexico. The Mexican government has given the go-ahead signal and details are being worked out. It is reported that Japanese Toyoda Co. will supply the machinery for the mill.

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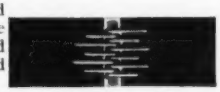

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NEWS ABOUT Men

Richard M. Archibald has resigned as executive vice president of Lockport Cotton Batting Co., Lockport, N. Y., to head the new Archibald Sales Co. **William J. Eaton,** sales manager of Lockport Cotton Batting, will be associated with him in the new company.

William E. Ashley has been promoted to assistant superintendent of the gray mill of Riegel Textile Corp., Trion Div., Trion, Ga. **Robert L. Martin** has been promoted to succeed Mr. Ashley as overseer of the warp yarn mill. **J. C. Cavin** was promoted to assistant superintendent of the dyeing and finishing department. He succeeds **Preston David,** who has been transferred to the Ware Shoals Div. as managerial assistant. **McHenry Hankins** was named to succeed Mr. Cavin as overseer of the folding and packing department. **Fay Willis** was promoted to assistant overseer of spinning. **William Oscar Bankley** has been promoted to director of cost accounting and will make his headquarters at Trion.

Arnold Bates has been named overseer of spinning at the Webster Mills of American Woolen Co., Webster, Mass., suceeding **L. Bussiere. Howard Mathewson,** assistant designer, has been transferred to the company's Beaver Brook Mill, Collinsville, Mass.

Arthur Binns has been promoted to superintendent at Dunn Worsted Mills, Woonsocket, R. I.

William J. Boler has resigned as manager of Southbridge Finishing Co., Southbridge, Mass., to accept the position of manager of the Consolidated Textile Co., North Adams, Mass.

Robert Bonner has been promoted to overseer of spinning and twisting at the Seminole Mills, Clearwater, S. C. Other promotions are: **Arthur Gibson,** cloth-room overseer; **Crawford Asbell,** night superintendent; **William Harris,** assistant production manager; **Elmer Wilson,** shift foreman of spinning and twisting.

M. RAY HARDEN is returning to the home offices of Erwin Mills, Inc, Durham, N. C., after serving as manager of Erwin Mills' Plant No. 8, Stonewall, Miss. Mr. Harden will serve as a consultant in various parts of the Erwin organization. C. O'Neal Walker has been named to succeed Mr. Harden at Stonewall.

C. A. Callahan has resigned as vice president in charge of manufacturing for Goodall-Sanford, Inc., Sanford, Me. **Ernest Chamberlain,** treasurer, has been named vice president, treasurer, and general manager of the firm's plants in Sanford, Me., and Reading, Mass. **Paul Meddling** has been named assistant general manager. **Edward E. Burdett** has returned to Goodall-Sanford as manager of the company's Mill G.

Robert Cameron has been appointed chief dyer of Indian Head Mills, Inc., Nashua, N. H.

Lawrence W. Carstensen, comptroller of Fruit-of-the Loom Corp., Providence, R. I., has been elected a director. He succeeds the late **Thomas L. Leslie.**

Graden D. Causey has resigned as plant superintendent of the Carlisle, Pa., mill of

News About **MEN** (Continued)

MILLS M. TUTTLE, JR., has been appointed manager of the Carolina Mills of American Thread Co., located at Clover, S. C., and Troutman, N. C.

C. H. Masland & Sons to open a retail store in Florida. **Paul L. Shearer** has been named to succeed Mr. Causey. **Howard E. West** has been appointed assistant to the plant superintendent.

Gordon Davis has been named to the newly created job of production manager of Union-Buffalo Mills, Union Plant, Union, S. C. **Carl E. Carson** has been promoted to night superintendent. **Arthur H. Rollins** has been promoted to shift foreman in the spinning department, and **Irving Billings** has been promoted to shift foreman in the cloth department.

Frank T. de Vyver, vice president of Erwin Mills, Durham, N. C., in charge of personnel and industrial relations, has been awarded an alumni citation by Oberlin College for service in various fields of human endeavor. Dr. De Vyver is also head of Duke University's Economics Department and a contributor to TEXTILE WORLD.

Robert J. Dinan has been named superintendent of the Tilton Mills of M. T. Stevens & Co., Franklin, N. H., succeeding **John Sullivan.** Mr. Sullivan has been transferred to the Stevens unit in Andover, Mass.

Jack Dixon has been named manager of the new plant of Munsingwear, Inc., at Hominy, Okla. Mr. Dixon's successor as resident manager at Albert Lea, Minn., is **Al B. Spielman.**

Hal S. Dumas has been elected a director of West Point Mfg. Co., West Point, Ga.

Charles D. Green has been appointed vice president in charge of manufacturing at Reeves Bros., Inc., New York, N. Y.

J. William Guffin, superintendent of the Corinth, N. Y., plant of Cluett, Peabody & Co., has been promoted to regional manager of the Leominster, Mass., plant. Mr. Guffin succeeds **H. T. Lyons,** who was recently named manager of licensee manufacturing operations of Arrow International.

George L. Hodges, Jr., has been appointed superintendent of the Newnan Mill of American Thread Co., Newnan, Ga., succeeding **Mills M. Tuttle. Lorenz M. Gregg** has been named carding overseer at the Newnan Mill.

Hubert Howell has been named maintenance supervisor at A. M. Smyre Mfg. Co., Gastonia, N. C. He succeeds his brother, **W. J. Howell,** who has resigned to go with Marquette Metal Products Co., Cleveland, Ohio.

Joe L. Jennings and **Ben L. Taylor, Jr.,** have been elected to the board of West Point Mfg. Co., West Point, Ga.

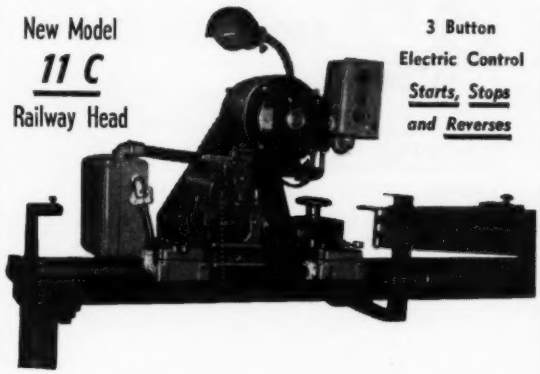
Roy E. Johnson has been named assistant superintendent at the Ragan Spinning Div. of J. P. Stevens & Co., Inc., Gastonia, N. C., succeeding **R. F. Miller,** who has retired. **R. F. Sullivan** has been named general superintendent of both the Stanley Mills Div., Stanley, N. C., and Ragan Spinning Div.

Richard T. Kropf has been elected to the board of directors of Belding, Heminway Co., Inc., New York, N. Y.

Dan Lamb has been named superintendent of the Arlington, Arkray, Mutual, and Myrtle Plants of Textiles, Inc., Gastonia, N. C., taking on additional duties since the recent retirement of **M. B. Cloninger,** superintendent of Arkray and Mutual, and **D. H. Whitener,** superintendent of Myrtle, assistant superintend-

New Model **11 C** Railway Head

3 Button Electric Control *Starts, Stops and Reverses*



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All bars, levers and parts for mechanical control eliminated. Reduced maintenance cost.

Operator has instant control of sewing. Sewing stops at end of seam automatically.

Reverse button returns head to starting position while operator prepares fabric ends for next sewing. Head stops at starting position automatically.

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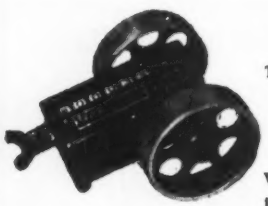

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GREENVILLE, S. C. FALL RIVER, MASS.

News About MEN

(Continued)

ents have been appointed as follows: **Frank Hedrick** at Arkray; **Dan Ragan** at Arlington; **W. Russell** at Mutual; and **Earl Joston** at Myrtle.

Morely Lindquist has been named superintendent of National Worsted Mills, Inc., Jamestown, N. Y., succeeding **John Turner,** who has been transferred to the new mill of the company in Washington, N. C.

John Mason has retired as general manager of Putnam Mills, Corp., Putnam, Conn. He will be succeeded by his son, **John Mason, Jr.,** formerly associated with Cheney Brothers, Manchester, Conn.

Earle Mauldin, Jr., formerly assistant secretary and office manager of Riegel Textile Corp., Ware Shoals, S. C., has been appointed assistant controller of the company, assigned to the treasurer's staff. He will travel between New York, Ware Shoals, Trion, and Greenville. He is succeeded at Ware Shoals by **Clayteen Lewis.** He is the son of the late **Earl Mauldin,** formerly a Southern representative of TEXTILE WORLD.

Charles E. McCarthy, vice president of Chadbourn Sales Corp., New York, N. Y., has been named vice president and a director of Chadbourn Hosiery Mills, Inc., Charlotte, N. C. **William J. Leath,** vice president, has been elected to the board.

W. Bryan Moore, vice president of Wade Mfg. Co., Wadesboro, N. C., for about 10 years, has been elected president, succeeding **L. D. Rivers,** retired. Mr. Rivers will remain as director. **Kenneth M. Hardison** has been elected vice president.

Frank A. Norman, Jr., has been elected assistant treasurer of Columbus Mfg. Co., Columbus, Ga., Dixie Mills, Inc., LaGrange, Ga., Equinox Mill, Anderson, S. C., and Wellington Sears Co., New York, N. Y., all subsidiaries of West Point Mfg. Co., West Point, Ga.

Philip Orser has been named head dyer at Massachusetts Mohair Plush Co., Inc., Lowell, Mass. **John J. Goodwill** has been named personnel manager. **John L. Mortimer,** formerly superintendent of the

WILLIAM E. REID (Top left) has been elected executive vice president of Riegel Textile Corp., New York, N. Y., succeeding William E. Berry. VAN COURT ANDREWS (right) has been named to succeed Mr. Reid as vice president and general sales manager. ROBERT POISSON (left) has been appointed assistant general sales manager.

News About **MEN** (Continued)

Mohair Plush plant at Salmon Falls, N. H., has been transferred to the company's mill in Lowell, succeeding **K. Greenwood.**

Lester E. Parkhurst has been appointed resident manager of the Webster Mills of American Woolen Co., Webster, Mass.

Kerwin F. Purnell has been named night superintendent for W. S. Libbey Co., Lewiston, Me.

John A. Simmons, Jr., has been elected treasurer of Lanett Bleachery & Dye Works, Lanett, Ala. **James L. Young** has been elected assistant treasurer.

Thomas C. Smotherman, Gastonia, N. C., has been appointed assistant to the president of the Thread Div. of American & Efird Mills, Inc., Mt. Holly, N. C., with offices at Mt. Holly.

Willard F. Staples has resigned as president of Merrimack Mfg. Co., Lowell, Mass., but will continue on the board of directors.

William D. Stowe has been named superintendent of National Yarn Mills, Inc., Belmont, N. C., replacing **Hugh Y. Ballard,** who has resigned to join Bladenboro Cotton Mills, Bladenboro, N. C.

Guy Willis has been appointed superintendent of Highland Park Mfg. Co., Plant No. 2, Rock Hill, S. C., succeeding the late **W. B. Shannon.** Mr. Willis has been with Inman Mills, S. C., as overseer of weaving.

OBITUARY

Robert Braun, 81, chairman of the board of Bates Mfg. Co., Lewiston, Me.

O. W. Burkett, 63, secretary-treasurer of Vanette Hosiery Mills, Dallas, Tex.

George Crompton, 81, a director of Crompton & Knowles Loom Works, Worcester, Mass.

John B. Gilbert, 62, treasurer and a director of Sonoco Products Co., Hartsville, S. C.

John H. Habicht, former manager of Duplan Corp., Hazelton, Pa.

William E. Hartman, 65, former manager of the United Woolen Co., Bluefield, W. Va.

Jesse Jaffee, vice president of Jaffee Cotton Products Mfg. Co., Dallas, Tex.

George F. Lattimore, secretary-treasurer of Park Yarn Mills Co., Kings Mountain, N. C.

Alec Masson, 46, production manager of Jantzen Knitting Mills, Seneca, S. C.

Arthur Gould Odell, president and treasurer of Kerr Bleaching & Finishing Works, Concord, N. C.

William M. Owensby, 74, overseer of carding at Alma Mills, Gaffney, S. C.

Robert H. Papy, Sr., 58, supervisor of Collins & Aikman Corp., Philadelphia, Pa.

Ben Tillman Patterson, 57, assistant overseer of carding at Limestone Mfg. Co., Gaffney, S. C.

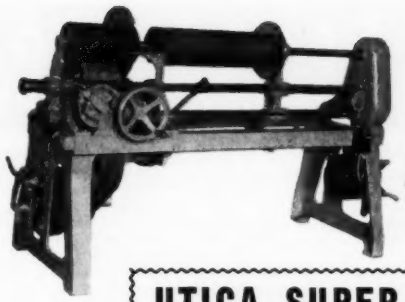
Earl A. Powell, 59, superintendent of Goodyear-Clearwater Mills, Rockmart, Ga.

Thomas W. Prestwich, former vice president in charge of worsted manufacturing for American Woolen Co., New York, N. Y.

Lester J. Ross, 62, president of Torrington Co., Torrington, Conn.

Arnold Voltmann, 55, former vice president, general sales manager, and director of Bloomsburg Mills, Inc., Bloomsburg, Pa.

Emil V. Wilson, owner of Emil V. Wilson Textile Machinery Co., Greenville, S. C.



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SEND NEW ADVERTISEMENTS to N. Y. Office, 330 W. 42nd St., N. Y. 36, N. Y., for February issue closing January 15th

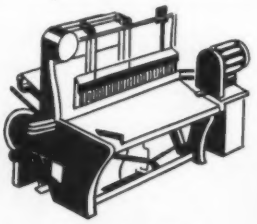
MANAGER—Southern Jacquard Weaving Mill

New plant in process of growing to full size, requires services of proper man to manage. This opportunity opens an excellent future with very desirable compensation and benefits.

Position requires a man trained in all phases of jacquard weaving and personnel management.

Answer with qualifications and past performance to

P-1160 Textile World
330 W. 42 St. New York 36, N. Y.



SEARCHLIGHT
Equipment Spotting Service

NO CHARGE
NO OBLIGATION

This service is aimed at helping you, the reader of TEXTILE WORLD, to locate used and surplus new textile machinery and equipment not currently advertised. (This service is for user-buyers only.)

First, read the dealer ads on the following pages. A 5-minute study may locate the equipment now.

Second, send in the specifications of the equipment wanted on the coupon below, or on your own company letterhead, to

Searchlight Equipment Spotting Service
c/o Textile World
330 W. 42nd St., N. Y. 36, N. Y.

Your requirements will be brought promptly to the attention of the used equipment dealers advertising in this issue. You will receive replies directly from them.

Searchlight Equipment Spotting Service
c/o Textile World
330 W. 42nd St., N. Y. 36, N. Y.

Please help us locate the following used equipment:

.....

.....

.....

NAME ..... TITLE .....

COMPANY .....

STREET .....

CITY ..... ZONE ..... STATE .....

POSITIONS OPEN

We can place—SUPT. combed cot. yarn mill; supt. silk wind., throw., warp. and weav. (foreign); night supt. cot. mill (S. Am.); woolen yarn supt.; cot. sheeting mill; mgr. new filament rayon cloth mill; prod. supervisor full fash. knit. machines; prod. control man knit. mill; office mgr.—accountant; designers for rayon-cot. and worsted men's wear fabrics.

OVERSEERS for weav. rubber fabrics; wool. card. days and nights; cot. weav., So. Am.; wool. finish.; starch. and calendering; wool. frame spin.; weav. upholstery fabrics; rag picking; cot., rayon, worsted and woolen raw stock and piece goods dyeing; tubular knit goods dyeing. SECOND HANDS worsted piece goods dyeing; woolen napping.

MASTER MECHANICS, mech. engineers, plant engineers, designers and draftsmen; time study men; chemists, chem. engineers and laboratory men for mills, also demonstrating and selling; dyestuffs salesman, Phila. area; soap salesman; tricot foreman and fixers; fixers for full fash. hos., Brinton, Supreme, Raschel and sew. machines; loom fixers.

If you are available for one of the positions listed here, or for any other executive position in textiles, SEND US YOUR RESUME. It will be in STRICTEST CONFIDENCE.

CHARLES P. RAYMOND SERVICE, INC.
294 Washington St., Boston 8, Mass.
Telephone Liberty 2-6547

Over 55 years in business placing and in supplying textile mill executives.

WANTED EXPERIENCED TEXTILE MECHANICAL ENGINEER

Familiar with Carpet Manufacturing Machinery.

One with imagination and knowledge necessary to design, direct development and improvement of equipment as well as manufacturing processes.

Splendid opportunity for right man.

Write in strict confidence, giving age, educational background, and complete history of your experience.

OLSON RUG COMPANY
2800 N. PULASKI ROAD
CHICAGO 41, ILLINOIS

TEXTILE EDITOR WANTED

Must have had practical experience in woolen and worsted manufacturing. Extensive knowledge of synthetic fibers required. Experience in writing for publication preferred. Age 25 to 40. Give details on education, former connections, salary, etc., in first letter.

P-9314, Textile World
330 W. 42 St., New York 36, N. Y.

FOR SALE
COMPLETE MACHINE SHOP

equipped for doing Textile Machinery, and parts, including buildings, Textile Machines and parts.

DOYLE & MILLER
Main & Pensdale St. Philadelphia 27 Pa.

PROFESSIONAL SERVICES

EATON & BELL

Patent Attorneys

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1149 Munsey Bldg., Washington, D. C.

• MACHINERY AND EQUIPMENT •

Located at the

BROAD BROOK COMPANY

(Manufacturers of Fine Woolens)

BROAD BROOK, CONN.

AT PUBLIC AUCTION

WED. AND THURS. JAN. 13 AND 14, 1954

Commencing at 10:30 A.M. each day

THIS SALE INCLUDES THE BEST, NEWEST AND MOST MODERN WOOLEN MACHINERY AND EQUIPMENT EVER TO BE OFFERED AT AUCTION. THE FOLLOWING IS BUT A PARTIAL LIST.

SPINNING:—18 WHITIN MODEL E 120 SPD., 5¾ in. ga. x 4½ in. ring RING FRAMES (up to 1950)—Lincoln "Centromatic" lubrication system (1951)—H-W yarn conditioner—11 D&F mules—scales; steaming trucks; bobbins; supplies; parts; etc.

CARDING:—D&F set 3 CYL. 72 x 60 in. CARDS (1948)—9 D&F 3 CYL. 60 x 60 in. CARDS (up to 1941)—all cards all iron, motor driven, D&F dbl. apron tapes, Peralta rolls (1945-1946), 60 in. garnet breasts (1949-1953)—Electric hopper feed (1951)—card grinders; alum. spools; scales; aprons; tapes; etc.

WEAVING:—64 C&K W-3 MOTOR DRIVEN LOOMS (to 1950), 100-92-82 in.—TITAN DANMARK TYPE MUR2 WARP TYING HEAD (1952)—Overhead track system and hoists—26 C&K 92 in. auto. 4 x 1 box looms—perches; shuttles; reeds; bobbins; new parts; fibre boxes; etc.

DRESSING AND WINDING:—WHITIN AUTO LOADER (1952), w/SCHWEITER 48 SPD. WINDER—WHITIN 2 DRUM MODEL K DRESSING UNIT (1947)—3 D&F 118 in. motor driven pinless dressing reels (1941)—warp compressors; magazine creels; beamers; etc.

PICKING:—D&F 48 in. "Fearnaught" unit, w/Benoit blending system (1944)—D&F 48 in. "Fearnaught" unit (1944)—3 D&F 48 in. mixing picker units—blowers; trucks; new picker cyl.; etc.

WET FINISH:—RIGGS & LOMBARD 10 ft. TYPE 106 RUBBER ROLL WASHER (1951)—HUNTER 72 in. CLOTH CARBONIZING RANGE (1942)—BIRCH 84 in. vacuum extractor w/h-6 pump (1952)—2 P&W 2 cyl. 74 x 64 in. teazle gigs (1946-1949), in tandem, 10 motors, 20 contacts—2 GESSNER BOIL-OFF TANKS (June 1953), w/Foxboro vernier set controls—R&L soaping system—Gessner floor type vacuum extractor—Gessner nylon wet brush—Miller tenter dryer, 10 pass x 72 in. motor driven, P&S housing—Hunter No. 26B fulling mills (to 1942)—Hunt 98 in. Type P Clipper washer (1940); etc.

DRY FINISH:—P&W 90 in. BURLING and DIXIE SHEARING RANGE (1952)—P&W BACK LIGHTED CLOTH INSPECTION PERCH, AIR GUIDES, "J" BOX STORAGE, RAILWAY NO. 3B SEWING HEAD, TOLEDO CLOTH SCALE (April 1952)—P&W 3 BLADE 72 IN. DAVIDSON SHEAR (1948)—2 WOONSOCKET 84 in. 20 ROLL NAPPERS (1951)—P&W Cropping shear (1951)—7 P&W 90 in. back lighted power burling and mending perches (1953)—GESSNER 72 in. MODEL PD 20 ROTARY CLOTH PRESS (1949), w/hydrolizer, roll up head, and air guides—Birch Uxbridge Type power inspection perch, for ninety-six in. cloth—P&W 72 x 36 in. semi decater (1949), L-5 pump, air guides—3 Gessner 72-76 in. 18 roll D. A. nappers (to 1941)—P&W Centurial and Model A 66½ in. shears—P&W 4 cyl. steam brush—C&M doubling and tacking range w/Merrow A3D head—Andrews & Goodrich cloth conditioner (1942)—Gessner full decater unit; etc.

STOCK DYEING:—Riggs & Lombard 500 lb. STAINLESS STEEL HI-TEMP UNIT (1953)—9 R&L and Scribner 500-100-50 lb. s. s. kettles (to 1949)—Hunter 5 section dryer (1948)—2 Sargent squeeze roll units—overhead track and electric hoists; etc.

PIECE DYEING:—R&L 9 ft. s. s. dye kettle. w/Cyclelog control (1951)—2 R&L 7 ft. s. s. dye kettles (1948)—Hunter 8 ft s. s. dye kettle—R&L 4 ft. s. s. dye kettle—R&L 18 in. s. s. sample kettle (1952)—Hunt 24 in. Trushade s. s. sample kettle; etc.

INSPECTING, SEWING, TESTING:—2 D&F sample cards—Scott testers; 4 Macbeth "Exmaolites" (1952); 4 Macbeth color matching lamps (1952); 3 Trumeters (to 1953); analytical balances; yarn reels; perches; Economy Style 29B blanket press; 10 Merrow D3B and 60ABB1 butt seamers; Merrow A3D overedge sewing machine; 4 Singer No. 31-15 machines; 2 Carnely number sewing machines (1—1952); etc.

GENERAL FACTORY EQUIPMENT—INGERSOLL-RAND 7 x 11 TYPE ES-1 AIR COMPRESSOR (1947), w/75 hp. motor, tank and controls; CLARK 4000 lb. Model 4015 grablift truck (1952)—Economy Model 172F4 upstroke baler (1949)—FAIRBANKS 1000 lb. dial "Printomatic" scale; Ford and Gravly tractors; motor trucks; complete machine shop; pipe shop; woodworking shop; electric motors; capacitors; AMERICAN HUMIDIFICATION SYSTEM; elec. water coolers; mill supplies; stock room; hardware; Shaw Walker steel desks; office furniture and equipment; etc., etc.

Sale to take place upon the premises, and will be sold piece by piece. Immediate delivery. A deposit of 25% will be required, other terms at sale. Inspection daily to time of sale. Illustrated and descriptive catalogue in detail upon application to

HENRY S. ANTHONY & CO.

Auctioneers

219 Central St. **LOWELL, MASS.** **Phone Lowell 2-4991**

SEARCHLIGHT SECTION

MODERN FINISHING MACHINERY FOR SALE

1—Van Vlaanderen Tenter Frame 100' long W/Nat'l housing, 14 fans, 66" wide, Reliance drive—1946
1—Van Vlaanderen Tenter Frame 100' long W/Proctor & Schwartz housing, gas heat, 66" wide, Reliance drive—1948
1—Van Vlaanderen Palmer Tenter Unit 50' long x 66"—1949
1—Van Vlaanderen Decatizer 50", pumps and blanket—1948
1—Cottage Steamer, cast iron, 18' long, 90" diam.
1—Rodney Hunt Sample Dye Box, 3' wide, stainless steel
1—Perkins Hydraulic Calender, 50" wide, 4 rolls, 50-ton—1950
1—Proctor & Schwartz Loop Dryer 60' long x 102" wide, 9 fans—1948
1—Van Vlaanderen 60" Calender, 4 rolls, 20-ton, hydraulic—1948
1—Verduin Friction Calender, 55", hydraulic, 20-ton—1952
1—Hennikens Boil-Off Range, 72" wide x 24" long—1950
24—Stainless Steel Dye Jiggs—50-72" wide, Van Vlaanderen and Werner, come enclosed, ind. motors
8—Van Vlaanderen Stainless Steel Duplex Dye Boxes 6' and 8'—1949
10—Stainless Steel Enclosed Dye Boxes 5' to 10' wide—1948-50
4—Van Vlaanderen Hi-Speed Tubers 60"—1947
6—Pneumatic Padders—55"-65" wide, 3-10 ton, 1946-50
2—Van Vlaanderen Embossing Calenders 54"—Treebark
1—Set of Stainless Steel Cans, 23 Cans 72" wide, vert. stacks—1950
1—Set of Stainless Steel Cans, 24 Cans 72" wide, horizontal—1948
1—Set of Copper Dry Cans, 23 cans 60" wide, syphons

ADDITIONAL WEAVING MACHINERY FOR SALE

100—Crompton & Knowles W2 Looms, 20 harness, 82", motor, Age 1945
200—Draper XD Looms, 46" cloth, 20 harness dobby, motor, Age 1946
225—Draper XD Looms, 56" cloth, 20 harness dobby, motor, Age 1945
126—Crompton & Knowles S6 Looms, 20 harness dobby, motor, Age 1947
7—Abbott Quillers, 100 spdls., 7⅜"—9" quills, Age—1946-1950
1—Barber-Colman Tying-In Machine Model LL—1945
3—Whitin Schweiter Quillers, 7-⅜"—8" quills, 30 spdls. ea., 1945

Telephone Cortlandt 7-1591

REPUBLIC TEXTILE EQUIPMENT CO.
40 WORTH STREET NEW YORK CITY
REFINANCING · APPRAISALS · PURCHASE · SALE · LIQUIDATION OF MILL PROPERTIES

LIQUIDATING

RIVERVIEW FINISHING CO., PATERSON, N. J.

1—3 Roll 68" Hydraulic 30 Ton Calender—M. D.
1—Hinnekens Boil Off, New 1948.
1—3 Roll 62" V. V. Calender—M. D.
1—58" Herman Meas. & Inspect. with reverse, like new—$350.00
1—V. V. 54" Embosser, 2 Roll, $2000.—M. D.
4—10' S. S. Dye Becks, Motor—$700.00 each
2—8' S. S. Dye Becks, Motor—$600.00 each
1—4' S. S. Dye Becks, Motor—$450.00 each
1—V. V. 48" Decatizer, Pump, Motors & Blanket—$1800.00
1—V. V. Tenter Frame—50'—S. S. Clips—closed gears—M. D.—$2800.00
1—V. V. 3 Roll Calender 45"—$1650.00—M. D.
3—Beamers 76"—58"—50"—$125.00 each—M. D.
2—Copper Jacketed Mixers, 200 gal & 75 gal—$250.00 & $125.00—M. D.
1—set of Mt. Hope Double Expander Rolls
1—50" Padder—2 Rolls—$350.00
1—68" Progressive Hyspeed Exam. & Measuring Machine, with reverse—M. D.
1—Morrow Sewing Machine—60 3DB—M. D.
1—60" Extractor—$600.00—M. D.
1—V. V. 50" Scutcher—$800.00
1—V. V. 64" Palmer, Quetch & Blanket, M. D.—$2800.00
6—Textile Squeeze Sets, 96" long, 2 Rubber Rolls 10" & 12" diam., roller bearings
1—set 23 Copper Dry Cans, 60" x 23"
1—set 15 Copper Dry Cans, 64" x 23"—M. D.
1—set 8 Copper Dry Cans, 84" x 23"—M. D.
1—set 9 Copper Dry Cans, 72" x 23"—M. D.

FOR ALL INFORMATION—WRITE, WIRE OR CALL

A & M BLANK CO., INC.

301-313 East 22nd St. (at 7th Ave.) Paterson, N.J.
SHerwood 2-1367-8

OUTERWEAR FABRICS WANTED

Direct from Mills by Creative Selling Agents

Two men, long associated and highly regarded in the textile industry, are forming an organization to sell fabrics to the Ladies', Men's, Boys', Girls' and Children's outerwear cutting up trades, on an exclusive basis.

These men have each had more than two decades of executive responsibility for styling, sales, sales promotion and advertising. The scope of their work has been international, with sales to every continent in the world. In this country, their contacts include the owners of the outstanding manufacturing establishments and also the upper merchandising echelons of the retail syndicates and mail order houses.

Bank and industry references of the highest order can be furnished.

RA-1106, Textile World
330 W. 42 St., New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

A QUALIFIED and experienced Consultant-Designer Engineer who can guide in designing New Textile Machinery components by correspondence. Please write: Industrial Spare-Parts Co., Relief Road, Kadja Kui, Ahmedabad—India.

WANTED—TECHNICAL demonstrator, for New York metropolitan area, familiar with plant demonstrations in the field of Vate, Azoics and Pigments as applied to textiles. Send resume of qualifications and experience to Personnel Manager Sandoz Chemical Works, Inc., 61 Van Dam Street, New York 13, N. Y.

POSITIONS WANTED

EXPERIENCED SKETCHMAKER wishes position in Print Works or Job Shop, U. S. location preferred, Canada, Central or South America considered. PW-9857, Textile World.

Knitter-Mechanic, Machinist and Technician, builder of various types of Knitting machines, broad experience, inventive ability, wishes to relocate. PW-1155, Textile World.

PERSONNEL AND Labor Relations man with experience in textiles desires new connection. Has administration and executive experience with a practical background in manufacturing, production, cost accounting, rate setting, and industrial engineering. PW-1107, Textile World.

MILL SUPERINTENDENT available. Alert, experienced in all types of synthetics and some cotton. Draper and C & K looms, up-to-date, and dependable. PW-1042, Textile World.

SELLING OPPORTUNITY WANTED

WANTED DIRECT Mill lines in Sheets, Bath-towels, Blankets and Cotton Bedspreads. For Wisconsin and Minnesota, with established Accounts. RA-1079, Textile World.

FOR RENT

Office Space for Rent. 34th St. & Madison Ave., FR-1108, Textile World.

2—48"x48" D & F two breaker shoddy cards.
1—J & B 360 spindle giant package mule. 2½" guage (bobbins & drive).
4—40" Worcester warp compressor spoolers. Model MHS. 40 end.
2—48" Worcester warp compressor spoolers. Model MHS. 48 end.
6—36" x 60" iron doffers.
2—Set 48" D & F 96 end dividing rolls.

MARSHALL GREENE
5 Rosewood Dr. Worcester, Mass.
Phone WOrcester 7-2869 or 2-0053

FOR SALE

23 Cast Iron Drying Cylinders, 62" face, 28" diameter, complete with bearings, gears, and side frames.

FS-9638, Textile World
520 N. Michigan Ave., Chicago 11, Ill.

SLATS
ALL TYPES — FLAT & PINNED
APRONS
Send samples or details for quotation
All Types — Also Lags, Pins & Sour Teeth
Consulting services on picking & coarse fibre carding
ROBERT A. MAIN & SONS
12 Riverview Lane, Ho-Ho-Kus, N. J.

FOR SALE

4 C&K Label Looms

15' 8" between frame, 2 bank, 30 space, 1¼" opening. Now operating. One complete with Jacquard harness, warp beams and spare parts.

FS-9939, Textile World
330 W. 42 St., New York 36, N. Y.

We are EXCLUSIVE liquidators of Bethlehem Textile Mills-Bethlehem, Pa.
formerly Bethlehem Silk Co.

NARROW FABRICS and BROAD GOODS DIVISIONS

A tremendous "piece meal" liquidation of narrow fabrics and broad goods machinery and equipment sold as INDIVIDUAL ITEMS! Listed are but a few of the many thousands of items available for immediate delivery. All merchandise sold FOB Bethlehem, Pa., and is subject to prior sale.

48 - Fletcher Standard NARROW FABRIC LOOMS

Late type motorization. Like-new battens ranging from 56 to 92 spaces. Equipped for broad beams Milton type 16"x42". Cam motion and Dobbies.

COMPLETE FINISHING DEPT.
including
- 3, 5 and 6 can finishing machines, 18" face, complete
- with calendar, let-off and take-ups.
- Moire machines, kettles, etc.

• BEAMS • WARP SPOOLS
HARNESSES of all sizes

650 Spindles C&K-Universal QUILLING MACHINES

BROAD GOODS LOOMS
14 C&K 60' 4x4 motorized Box Looms
16 C&K 72' 4x4 motorized Box Looms
4 C&K 82" 4x4 motorized Box Looms

4—REBUILT C&K Heavy Duty WEBBING LOOMS
In like-new condition.

200—MILTON ADJUSTABLE NARROW FABRIC BEAMS
Two sizes—16"x42" and 18"x42"

COMPLETE BLOCKING and ROLL-UP DEPARTMENTS

- Scott testing equipment Yarn testing equipment
- Inspection Wire stitching Scales of all types
- Office Equipment including desks, filing cabinets,
- adding machines, Comptometers, Scales, IBM
- time clocks, GE elec. drinking fountains, fluor-
- escent lights.

This is only a partial listing . . . . many other items available. Advise us of your needs.

40—1948—56" S-6 LOOMS 2x1. 20 harness. Motorized. In excellent condition.	150 - Foster 75A NYLON CONERS Roller bale pineapple attachments. Gear gain. Motorized. SS emulsion troughs and rolls. Excell. condition.	60—Universal #50 L-DRIVE CONERS 3—30 gear gain boxes. Anti-wear tensions. Motorized.
120 Spindles 1951 Universal NYLON SIZING MACHINES Complete with circulating system and viscometer.	135 Spindles Whitin Schweiter AUTO. QUILLING MACHINES In excellent condition.	BROAD GOODS WARPERS 1 Sipp Eastwood 83" heavy duty 8 yd. high speed mot. warper. 3 Sipp heavy duty 83" 8 yd. low beam warper.

All items subject to prior sale

WRITE, PHONE OR WIRE FOR APPOINTMENT.

Wm. Rabinowitz & Sons
TEXTILE MACHINERY, BOBBINS & SUPPLIES
214 - 222 Hamilton Street Phone HEmlock 3-7497 3-7498 Allentown, Pa.

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OF A MODERN

PIECE DYEING and FINISHING PLANT

Most machines bought 1951, 52, 53

PILGRIM PIECE DYE WORKS,
1 NASSAU AVE., BROOKLYN, N. Y.

By acting now you may secure machines you need at substantial reductions. Representatives at plant daily during business hours. For further information write, wire or phone Evergreen 8-0760 (Brooklyn) on Sherwood 2-0800 (Paterson, N. J.).

1—50'x66" Van Vlaanderen Tenter, 6" clips, drying cyl., 30' enclosure (w. coil and fan). 10 h.p., A.C. motor.

1—100'x66" Van Vlaanderen Tenter with 2 roll 70" 10 ton V.V. Pneu. Pad, 66" Mt. Hope Scray Box, 88" Proc. & Schw. Housing, gas heat, Reliance V.S.D.C. Gen.

1—100'x66" Van Vlaanderen Tenter, 60" 10 t. Werner Pneu. Pad, overhead predryer, 74' Nat'l. Dry. Mach. Housing, steam heat, Reliance V.S.D.C. Gen.

1—50'x66" Van Vlaanderen Palmer-tener & Pad with 4" clips, 9 carbomat. burn. w. blower), power opener, elec. eyes, steam box, V.V. 70', 10 t., 2 roll pneu. pad., Foxboro Cont., Reliance V.S.D.C. Gen.

1—72" Hennekins Boil-off, S.S. conveyor.

1—2 line 62' Proctor & Schwartz Loop Dryer, 102" face rev. poles, 95 h.p. circ., 33 h.p. exh. fans., Llewellyn Drive.

4—Van Vlaanderen 60" to 65" Beamers.

2—54" Emboss. Machs., wt. and lev. pres.

1—60" Van Vlaanderen Singeing Mach., Carbomat. Burners.

1—66" Van Vl. 7 Drum Setting Mach.

4—60" Van Vl. Jigs, S.S. tubs & rolls.

6—60" Van Vlaanderen Constant Speed Jigs, S.S. tubs, idler rolls.

14—60" to 71½" Werner Jigs (5 with S.S. enclosures), S.S. tubs, idlers, etc.

7—6' to 10' Van Vl. Duplex Dye. Machs., S.S. tubs, reels, etc., Foxboro Controls.

4—6' to 10' x 9' x 40" Blickman Totally Enclosed Dye Boxes.

2—6' x 8' x 42" Werner Dye Boxes, S.S. with S.S. reel and pony reel.

Many other dye boxes with S.S. reels, gear drives, etc.

1—American Laundry Mach. Tumbler, 3 Compartment, all S.S.

2—60" two roll Werner Pads (1 micro-set, 1 pneumatic).

1—70" Werner S.S. 23 Can Vert. Dryer.

1—70" Werner S.S. 24 Can Horiz. Dryer.

1—72" Birch Bros. Scutcher.

1—60" four color Modern Tex. Mach. Printing Mach. with washer (S.S. dry. cans w. rot. joints, flex. hoses, headers, etc.) 60' overhd. dryer w. fin coils and h.s. fans.

1—60" Werner 1 color Prntg. Mach., 21' Overhead dryer, coils and h.s. fans.

1—60" Werner Stencil Prntg. Mach., 125' dryer, coils and h.s. fans.

1—50" four roll 50 T. Perkins hyd. Calender (2 cotton, 2 chilled iron rolls).

1—60" four roll 20 T. Van Vlaanderen Hyd. Calender (t. roll gas heat, b. roll steam).

1—55" two roll 20 T. Verdun Friction Calender (1 paper roll, 1 Chrome plate roll elect. heated).

1—70" Windsor Jerauld Duplex Batcher.

1—58" Van Vlaanderen Decatizer.

5—60" Van Vlaanderen Constant Speed Tubers with measuring drums.

2—64" Progressive Reverse. Exam. Mach.

2—78" Werner Reverse. Examining Machs.

2—New 68" Burlington High Pressure Dyeing Mach. 316 S.S.

Miscellaneous dye house, laboratory and mach. shop equipment.

All machines have individual drives and 3 phase A.C. motors.. All machines offered subject to prior sale.

MANY MORE WET PROCESSING MACHINES FOR SALE. SEE THEM NOW.

S&K **Where your $$$$ buy MORE**

TERRELL BOBBIN STRIPPER
78—S3 AUTO C&K LOOMS 52" 2x1
24 XK AUTO DRAPER LOOMS 52½ R.S.
12—S5 CK AUTO LOOMS 60" R.S.

24—1-H.P. loom motors 3 Pt. 3/60/220/440
4—Tricot Machines 168 in.
1 3 Color-60" Print Machine
3 Hercules 48"-60" Extractor
300 Auto Drapers 43" to 76" cloth
16 C&K Auto Bob Changers 2x1—72" R.S.
12 C&K 4x4—54"—R.S.
40 C&K Woolen Looms 72" to 110" R.S.
1000 Electro Rods 66" to 133"
1 V.V. 40'-60" Tenter Frame, Enclosed Gears
1 V.V. 60'-66" Palmer Tenter, Unit, Complete
1 36" Self Balancing Extractor
1 W&J Tenter Frame 90" W 30' L
1 W&J Tenter Frame 54" W 30' L
5 Sets 72" "squeeze rolls"
6 Dye Boxes S.S. lined 8'—10'—12'.
1 Jostrom fabric conditioner 64"
1 19 can Butterworth dryer 72"
3 V.V. Button Breakers 1—60" 2—50"
4 Three (3) Roll Padders 45"
30 50" Dry Cans
4 Johnson Slashers—7—5—3 Can 66"
2 90" S.S. Jiggs
4 50" S.S. Jiggs
1 72" Greige Washer with Squeeze Rolls 24' long
5 Atwood 5B Twisters
9 Atwood Single Deck Utility Spinners
8 Sipp Warpers and Winders
20 #90 Universals
4 Oswald-Grundy 46—Spindle Cop Winders
5 Foster-Coners 75A
Hy-speed Sippwarper & 600 Cone Creel

STAVE & KESSLER
106 KEARNEY ST. P. O. Box 1611 Paterson, N. J.
Phone ARmory 4-7486

FOR SALE

WEAVING MILL
(COTTON OR RAYON)

Ready for Immediate Operation.
120 Auto Draper Looms 48" x 54".
Complete Modern Auxiliary Equipment.
Ready Labor Market.
Rhode Island Location.

CAN BE RELOCATED IF DESIRED.

Terms Arranged

PRINCETON MFG. CO., INC.
APPOINTMENTS ARRANGED THROUGH
N. Y. Office
401 Broadway, N. Y., N. Y.
Worth 4-5570

WE BUY AND SELL
TEXTILE MACHINERY
THROUGHOUT THE WORLD!
GEORGE W. EGAN
"The Machinery Man Known Everywhere"
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HOSIERY MACHINES
used and rebuilt
KNITTERS—RIBBERS—LOOPERS
CYLINDERS—DIALS—TRANSFERS
HOSIERY NEEDLES AND PARTS
JOS. BRESAN!
N. W. Cor. Hancock & Somerset Streets
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FOR SALE
AUTOFILL WINDER
One 8-spindle Foster-Muschamp, Autofill Winder complete with creel, guards, bunch builders, and motor. Purchased last year. Has not been operated more than 30 days. Good as new.
FS-1115, Textile World
520 N. Michigan Ave., Chicago 11, Ill.

PRIVATE SALE
MODERN DYEING and FINISHING MACHINERY

PARTIAL LISTING

FINISHING RANGES
1—120' x 60" Enclosed Tenter Frame.
1—90' x 60" Enclosed Tenter Frame.
BOTH UNITS GAS HEATED

STAINLESS STEEL DYEING MACHINES
6—14½' Totally Enclosed Dye Becks.
2—12' Dye Becks.
12—10'—15' Dye Becks, Type 316 Stainless Steel.
24—Dye Jiggs, 50"—72".
4—Padders, 50"—72", 2 and 3 Roll.

BOIL OFFS
2—Hinnekens Units.

CALENDERS
1—55" Hydraulic, 3 Roll.
1—70" Hydraulic, 3 Roll.
1—54" Embosser Hydraulic, 2 Roll.
1—54" Embosser, 2 Roll.

DRYERS
1—16 Fan Model E National Loop Dryer, 108" Poles.
1—8 Fan, 84" Poles.

TENTER FRAMES
1—40' x 66".
1—60' x 54".
1—90' x 54".
1—60' x 104".

MISCELLANEOUS MACHINES
2—60" Semi Decators.
10—Tubers and Examiners.
15—Sewing Machines (Merrow).
12—Beamers.
38—Trucks.
3—Scutchers, Etc.

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2 SCOTT TESTERS FOR SALE

Model IP-4 (Mfg. No. 41953)

Model IP-2 (Mfg. No. 38754)

Priced for Quick Sale

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Write or phone:
B. P. HOFFMAN, Purchasing Supervisor
Experiment Station
Hercules Powder Company, Wilmington, Del.

PREPARATORY
1—P.&S. Wstd. Breaker Card & Feed
8—Harwood, Sargent 42"—54" Picker Feeds
1—Whitin E-3 Card Feed, 60"
6—D. & F. & Sargent 6, 8 Bar Mixing Pickers
2—48" D. & F. Fearnought Pickers
6—18"—24" Shoddy or Waste Pickers
2—36"—48" Burr-Pickers
1—Schofield 48" Automatic Duster

WINDING & WARPING
Universal 50's & 90's rebuilt
2—Universal 6C Winders, 8" pkg.
1—Foster Mod. 12 Skein Winder
1—Foster Mod. 101 Cone Winder
1—Reiner 600 End Mag. Cone Creel
4—D. & F. Pin or Pinless Warper

FINISHING
1—Gessner Mod. 20 Press. 1950
2—Voelker 66" D.B. Presses
1—Set (6) Copper Dry Cans, 70"x36"
1—Wetting-Out Tank, S/S Lined, 62"
1—P. & W. 72" Steam Luster Machine
1—Crab, 3 bowl, 72", Yorkshire Type
2—Birch Doub. & Tack. Mach., 92"
2—Teasel Gigs, Doub. Cyl., 60"
1—P. & W. Cloth Doubler, 66"

MISCELLANEOUS
4—Macbeth Color Matching Lamps
1—72" Latex Coating Machine
1—P. & S. Cyclone Dust Collector, 1949
1—Nash No. 4 Hytor Pump
1—Singer Overlocker

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Textile Machinery and Supplies

BOUGHT AND SOLD
Warpers • Winders & Quillers
Looms

FOR SALE

1—German 48" Linen Mangle
1—Kane (Ireland) 13' Linen Beetle
1—Scotch 18"-50" Weft Straightener
1—Allen 3 Ton Kier
1—Elliott & Hall 30" Cloth Folder
1—Curtis & Marble 65" Cloth Folder
1—Set 24 T. I. 104" Dry Cans
40—C&K 624 Hook Jacquards

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Telephone 8-5616
SPECIALIZING IN BLEACHING, DYEING AND FINISHING MACHINERY SINCE 1920

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BRAND NEW EQUIPMENT

24 FLETCHER DOUBLE DECK TWISTERS 1 LB. PACKAGE

6 U.S. Redraws
1 H&W Yarn Conditioner
Aluminum Take-up Shafts 20 Oz.
5 Sipp Eastwood Double Deck Winders
1 Lydon Double Dry Box
Spinning Bobbins 10 Oz. & 16 Oz.

Stainless Steel Racks

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DOMESTIC TEXTILE — DYEING & FINISHING MACHINERY — EXPORT MACHINERY

523-525 E. 18th ST. — PATERSON 4, N. J.

WANTED

WANTED

WOONSOCKET NAPPER

36 roll

CALVINE COTTON MILLS

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Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. — Boston, Mass.
Established 1919

OUR SPECIALTY IS

UNIVERSAL #50 WINDERS

Pineapple Cone
Emulsion
Attachments
Gear Gain

Others All Rebuilt and to Your Specifications

Guaranteed

N. Y. C. REPRESENTATIVES FOR UNIVERSAL WINDING CO.

Gaines

FOR BEST VALUES IN REBUILT TEXTILE MACHINERY

GAINES TEXTILE MACHINERY CO., INC.
141 WEST 17TH ST., NEW YORK 11, N.Y.

ALSO

28—Foster Model 75A Winders, Pineapple, emulsion, anti-wear.

80—Universal #50 Winders, GearGain, (1942-1949).

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Plush Mill and Dye House

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WANTED

TWO STAINLESS STEEL TUBS

Depth 4'10" inside width 9' inside, front to back, dimension 7'11" outside. Spaces for 18 strings preferred. Can be motor driven or belt driven.

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330 W. 42 St., New York 36, N. Y.

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Loom Supplies

1500 Loom Motors, ½ H.P. ¾ H.P. 1 H.P. 550 & 220 V.
300 Electric Stop Motions complete, 4 & 6 bank
4000 Sliding Bar Stop Motion Rods
60,000 Heddle Frames 44" to 80", for all size heddles
20,000,000 Standard & duplex new & used heddles
2,000,000 Doup & super doup 12 & 13" heddles
400 Roper let-offs complete
10 Loom Beams, 24" dia. x 44" b/h NEW DRAPER
500 Loom Beams, 20" dia. heads 40", 46", 48"
300 Dobbies, 16, 20 & 25-harness, C&K, Stafford
2500 Pick Gears, Stafford, K, C&K looms
1000 set Stafford Cutter units complete
500 Pick clocks—Waltham, Durant, Veeder Root
500 Batteries complete for Draper Looms

1 66" 4 Blade Hermas shear
6 H&B Twisters 3"g. 240 sp. band drive
2 H&B Twisters 5-½"g. 120 sp. band drive
40 H&B & T&S Cards, 37", 10" coilers
4 Single Process & Finisher Pickers, 37"
1500 10" Roving Cans
3 sets 5 & 7 ft. Slasher drums & size tanks
2 S/L size kettles, 242 gallon
1 B/C Cheese Creel VC318, 1949
3 Universal Cone Creels 400 end
1 H&B Tomlinson Waste Opener
2 Roving Bobbin Strippers
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1 Vacuum stripping tank & pump

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NEW BEDFORD, MASS.

P O BOX 560
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48" Peralta to fit a Davis & Furber 48" Card

WINONA, MINNESOTA
Winona, Minnesota

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100—NO. 50 UNIVERSAL CONERS — GEAR GAINERS "A"—"L" DRIVES S. S. ROLLS—TROUGHS—PINEAPPLE
2—FIDELITY REELERS—2 ARMS—1953 MODEL
2—HERMAS INSPECTION FRAMES—82"—with Trim Master
200—S-5 LOOMS, S-6 CLUTCHES—13 S-6 LOOMS—56"
1—JOHNSON 5 CAN 66" SLASHER—WILL TAKE A 90" TAKE-OFF BEAM

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Anything you want

that other readers of this paper can supply

OR—

Something you don't want

that other readers can use, advertise it in the

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COMPLETE RAYON SPINNING UNIT

Installed in 1951 and 1952
Saco-Lowell—Latest Type

Includes Opening, Picking, Carding, Drawing, Roving, Spinning, Coning, Winding, and Laboratory Equipment.

6336 Spindles—Saco-Lowell Z-2 WW Frames
24 Frames of 264 Spindles each
2½" Ring, 4" Gauge, and 9" Traverse

USED EQUIPMENT – AVAILABLE IMMEDIATELY

HUNTER CARBONIZING TANK Item SLCS-E
Lead Lined Cypress Tank
Fittings Acid Resisting Metal
Nip Rolls Rubber-Covered 90" Wide—Never Used

WHITIN QUILLER—MODEL "J" Item B-WG
304 Spindle—3½" Gauge—10½" Traverse

S.A.G. FRENCH COMBS Item H-FC
New 1948—Used But Little

GESSNER TEASEL GIG & BRUSH RANGE Item GTC-B
New 103—Used 3 Months
68" Working Width

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SALES AND SALVAGE DIVISION

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AMERICAN MOISTENING HUMIDITY SYSTEM

Complete with 172 atomizers, 3 water control tanks, 8 Humidity controls, air and water piping. 1 Penn. air compressor size 10 x 9 class 3AT RPM 325 with 50 H.P. 550 volt motor, intake filter, aftercooler, separator, drain trap and vertical air receiver tank 30" x 7'. 1 Penn. air compressor size 12 x 8 class 3A RPM 325 with 25 H.P. 550 volt motor, intake filter, aftercooler, separator, drain trap and vertical air receiver tank 36" x 6'6".

Above equipment approximately 6 years old and in excellent condition. Will sell at a sacrifice price.

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C&K LOOMS, 2 x 1 AUTO. BOBBIN CHANGE, 54" R.S.

WHITIN AUTO QUILLERS
ABBOTT 100-SP. AUTO QUILLER
JOHNSON 7-DRUM, 60" x 30", STAINLESS STEEL, 1948
TERRELL BOBBIN STRIPPERS

COCKER 9-DRUM SLASHER, 60" x 30" Stainless Steel, year '47

DRAPER "XD", 50", DOBBY. DIEHL DRIVE 1951
REINER WARPER & CREEL
B.C. KNOTTERS
COCKER WARPER, SIPP CREEL
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1000 END RECENT SIPP MODEL
DX PULLY TENSIONS Electronic Stop Motions
HOLDERS FOR 6½" CONES

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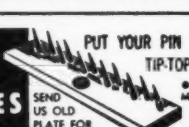
BRASS **PIN-PLATES** All Sizes



PUT YOUR PIN TENTERS IN TIP-TOP CONDITION

SEND US OLD PLATE FOR QUOTATION

Pins in Stainless, Monel, Plain Steel.

All Diameters Any Length

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TEXTILE AUXILIARIES

EXCELLENT MACHINERY IN STOCK FOR IMMEDIATE DELIVERY

1—Continuous du Pont J-Box Bleach Range, consisting of: Rope Saturator, Reel Loader, Steam Unit and J-Box, 2—Pneumatic Squeezers and Synchronous Controls.
1—72" Birch 15 Ton Pneumatic Padder Assembly, consisting of: Padder with 2—20" Rolls and 1—(NEW) Spare Roll 18". Mt. Hope Guider and Stand, ¾ HP Air Compressor, Birch 2 Roll Batcher and 5 HP Varidrive.

Padders—82"—72"—60"—44"—41"
Calenders—85"—80"—54"—42"—41"
Dry Cans—30" to 120"

Copper Print Rollers—W-Bore
Tenter Frames—90'—60'—50'—30'
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ALSO: Quetsches, Scutchers, Jiggs, Dryers, Decaters, Palmers, Hookers, Tubers, Batchers, Pumps, Tanks, Compressors, Rolls for Pads—Calenders—Squeezers—etc.

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Office—146 West River St. — Telephones—Dexter 1-9650, 1-8837

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Once is not enough!

The need for blood is greater than ever, not only for men wounded in combat, but here at home . . . to cure disease, to meet accidents and disasters, and to prepare for civil defense.

Our quota can ONLY be met, if those who give *keep on* giving . . . regularly!

You CAN give more than once . . . as often as every three months with complete personal safety. The more often you give the more often you save a life. For every pint of blood you give goes to someone who needs it desperately.

Remember . . . once is NOT enough. Give blood again and again! Call your Red Cross, Armed Forces or Community Blood Donor Center for an appointment to give blood today.

GIVE BLOOD

...give it again and again

BUSINESS EXECUTIVES!

CHECK THESE QUESTIONS

If you can answer "yes" to most of them, you—and your company—are doing a needed job for the National Blood Program.

- ◯ HAVE YOU GIVEN YOUR EMPLOYEES TIME OFF TO MAKE BLOOD DONATIONS?
- ◯ HAS YOUR COMPANY GIVEN ANY RECOGNITION TO DONORS?
- ◯ DO YOU HAVE A BLOOD DONOR HONOR ROLL IN YOUR COMPANY?
- ◯ HAVE YOU ARRANGED TO HAVE A BLOOD-MOBILE MAKE REGULAR VISITS?
- ◯ HAS YOUR MANAGEMENT ENDORSED THE LOCAL BLOOD DONOR PROGRAM?
- ◯ HAVE YOU INFORMED EMPLOYEES OF YOUR COMPANY'S PLAN OF CO-OPERATION?
- ◯ WAS THIS INFORMATION GIVEN THROUGH PLAN BULLETIN OR HOUSE MAGAZINE?
- ◯ HAVE YOU CONDUCTED A DONOR PLEDGE CAMPAIGN IN YOUR COMPANY?
- ◯ HAVE YOU SET UP A LIST OF VOLUNTEERS SO THAT EFFICIENT PLANS CAN BE MADE FOR SCHEDULING DONORS?

Remember, as long as a **single** pint of blood may mean the difference between life and death for **any** American . . . the need for blood is **urgent!**

NATIONAL BLOOD PROGRAM

Index to ADVERTISERS Keyed by PRODUCT

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HOW TO USE. First, look in the table below and find the letter that designates the class of supply or service in which you are currently interested. Then consult in the index the page numbers that are followed by that letter.

A. Air Conditioning, Air Cleaning
B. Building Construction and Maintenance, Paints, Yard Equipment, Water Supply
C. Chemicals and Dyestuffs
D. Cleaning Equipment
E. Dyeing, Finishing, and Cloth Room Equipment and Supplies
F. Electrical Equipment—Motors, Controls, Lighting, Etc.
G. Fibers, Yarns, Mills, Finishing Companies
H. Fluid Handling.—Compressors, Pumps, Piping, Valves, Fittings
K. Instruments: Measuring, Metering, and Weighing Apparatus
L. Knitting-Mill Equipment and Supplies
M. Lubricants and Lubrication Equipment
N. Management Services—Factors, Consulting Engineers, Insurance, Personnel Facilities, Plant Sites, Etc.
O. Materials and components for Machinery and Equipment
P. Materials Handling, Packaging, and Shipping Facilities
Q. Power Generation and Transmission (see also Electrical Equipment)
R. Weaving and Warp Preparation Equipment and Supplies
T. Yarn-Production, Twisting and Winding Equipment and Supplies

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Allen Mfg. Co.	224	O
Allis Co., Louis	71	F
Allis-Chalmers Mfg. Co.	15	F, Q
Aluminum Co. of America	60	O
Alvey Conveyor Mfg. Co.	176	P
American Air Filter Co., Inc.	199	A
American Crayon Company	232	E, L, R
American Lava Corp.	169	L, R T
American Lumber & Treating Co.	188	B
American Moistening Co.	12	A
American Monorail Co.	40	D
American Steel & Wire Div.	67	O
American Viscose Corp., Textile Chem. Dept.	181	C
Antara Chemical Div., General Dyestuff Corp.	43	C
Appleton Machine Co.	44	E
Armstrong Cork Co.	22-23	T
Arnold, Hoffman & Co., Inc.	33	C
Atkinson, Haserick & Co.	19	T
Atlantic Rayon Corp.	214	G
Atlas Electric Devices Co.	232	K
Automatic Transportation Co.	155	P
Bahnson Co.	6	A
Barber-Colman Co., Textile Div.	235	R
Barnes Textile Associates, Inc.	234	N
Basic Materials Exposition	27	N
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Bersworth Chemical Co.	233	C
Blickman, Inc., S.	231	E
Booth Co., Benjamin	238	T
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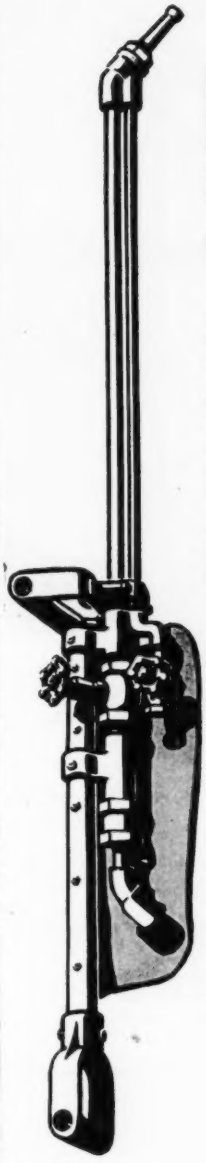
Caldwell Co., W. E.	231	B, E
Carroll & Co., J. E.	237	E
Celanese Corp. of America Chemical Div.	209	C
Yarn Div.	64-65	G
Century Electric Co.	10	F
Cities Service Oil Co.	163	M

Oakite STEAM CLEANING



proves the best answer to low-cost equipment maintenance

Hooked up to your own steam supply, this scientifically designed Steam-Detergent Gun cuts cleaning time in half.

Gun gives you a powerful cleaning combination of steam force, heat, and detergent action. It's a grime-blasting mixture you can easily regulate merely by twisting a valve.

Oakite Steam-Detergent Cleaning eliminates costly hand scrubbing. It simplifies and speeds up cleaning . . . particularly around those hard-to-reach areas.

Mills report typical savings such as these:

- **Braiding machine now cleaned in place—time cut from 2 days to half an hour**
- **3½ hours cut off Diesel radiator cleaning time**
- **Dye vat cleaning costs cut from $25 to less than $10**

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Use the Oakite Steam-Detergent Gun for stripping paint; for cleaning before rebuilding motors; for cleaning looms before overhaul. Descriptive folder of facts yours for the asking. Oakite Products, Inc., 42 Rector Street, New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING

OAKITE

MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada

for the best in

CANVAS

doffer's boxes

LOOK FOR Lane

Specially designed for use with doffer's trucks, *only* this economical Lane Style 20 Doffer's Box incorporates *all* these quality features for *long, dependable service at very low cost:*

- Full-capacity body of Lane-woven duck—with deeply-embedded stitches.
- Light-weight, extra-strong spring-steel frame with rugged, flexible hardwood bottom.
- Rounded rivets prevent snags and wear at all points.

STANDARD DIMENSIONS

26" long, 16" wide, 20" high

Lane canvas baskets, hampers, and trucks are *built to take it, built to last!*

See your Lane distributor or write . . .

8877

Canvas Basket Craftsmen Since 1894

Lane

THE LANE BASKET

W. T. LANE & BROS., INC., Poughkeepsie, New York

Clapp & Poliak, Inc.	27	N
Clark Equipment Co., Industrial Truck Div.	179	P
Clipper Belt Lacer Co.	239	Q
C-O-Two Fire Equipment Co.	171	B
Cocker Machine & Fdry. Co.	201	B
Cole Mfg. Co., R. D.	212	B E T
Coleman Co., Inc.	63	T
Colton Chemical Co.	222	C
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Columbia-Southern Chem. Corp.	14	C
Commercial Factors Corp.	2nd Cover	N
Courtaulds, Inc.	56-57	G
Crane Co.	62	H
Crane Mfg. Co.	216	L
Crompton & Knowles Loom Wks.	13	R
Crucible Steel Co.	75	O
Curlator Corp.	37	T
Dana Warp Mills	239	G
Darnell Corp., Ltd.	200	P
Dary Ring Traveler Co.	218	T
Dayton Rubber Co., The	38-39	RT
Deutscher Spinnereimaschinenbau, Ingolstadt	239	T
Dinsmore Mfg. Co.	241	E
Dodge Mfg. Corp.	72	Q
Dommerich & Co., Inc., L. F.	26	N
Draper Corporation	1	R
Durant Mfg. Co.	238	K
Durkee-Atwood Co.	18	Q
Edroy Products Co.	236	N
Eisenberg Fibers, Inc.	240	G
Elastic Stop Nut Corp. of America AGA Div.	206	F
Emerson Apparatus Co.	216	K
Engineered Plastics, Inc.	174	T
Evansville's Committee of 100, Inc.	170	N
Fairbanks Co., The	180	H
Fidelity Machine Co., Inc.	124	L
Finnell System, Inc.	32	D
Fiske Bros. Refining Co., Lubriplate Div.	225	M
Fletcher Works	211	R
Foster Machine Co.	48	T
Fuller Brush Co.	187	T
Gates Rubber Co.	20	Q
General Chemical Div., Allied Chem. & Dye Corp.	147	C
General Electric Co.	52-53	F Q
Globe Dye Works Co.	178	G
Goodrich Chemical Co., B. F.	205	C
Goodyear Tire & Rubber Co.	9	Q
Grinnell Co., Inc.	16	A H
Gulf Oil Corp.—Gulf Refining Co.	47	M
Hartford Machine Screw Co.	139	T
Haskell-Dawes Machine Co., Inc.	213	T
Hay Leather Co., Inc., Jas. E.	208	R
Heim Co.	203	R
Heineman Corp. O., Div. of Aetna Industrial Corp.	237	G
Hinde & Dauch	167	P
Howard Bros. Mfg. Co.	30	T
Hunt Loom & Mach. Wks., Inc.	45	R
Hunt Machine Co.; Rodney Industrial Roll Div.	213	F
Textile Machinery Div.	141	F
Huyck & Sons, F. C.	241	F
Hyatt Bearings Div., General Motors Corp.	173	O Q
Industrial Rayon Corp.	128	G
Industrie-Werke Karlsruhe	256	E
Ives Co., L. T.	226	L

Jiffy Textile Marker Co.	236			E	I		R
Johnson Service Co.	161				K		
Keever Starch Co.	177		C				
Kidde & Co., Inc., Walter	223				K		T
Kidde Mfg. Co.	207				L		
Kuljian Corp., The	172					N	
Lamson Mobilift Corp.	168						P
Lane & Bros. Inc., W. T.	254						P
Lestershire Spool & Mfg. Co.	186						R
Link-Belt Co.	7						Q
Livermore Corp., H. F.	183						R
Lockwood Greene Engineers, Inc.	24					N	
Loper Co., Ralph E.	242					N	
Louden Machinery Co.	36						P
Lubriplate Div., Fiske Bros. Refining Co.	225				M		
Lucey Boiler & Mfg. Corp.	191						Q
Manhattan Rubber Div.	46						Q
Manheim Mfg. & Belting Co.	70						Q
Maple Flooring Mfrs. Assn.	190		B				T
Marquette Metal Products Co.	126			E			
Marshall & Williams Corp.	230						
Mathieson Chemical Corp.	2		C				T
M-B Products	240						R
McCaskie, Inc., Wm.	210			E			
Merrow Machine Co.	192						R
Milton Machine Works, Inc.	238						
Minneapolis-Honeywell Reg. Co. Industrial Div.	68-69				K		
Moisture Register Co.	217				K		
Nash Co., J. M.	229			D			RT
National Aniline Div., Allied Chem. & Dye Corp.	25		C				
National Tube Div.	67					O	
Nopco Chemical Company	50		C				
Oakite Products, Inc.	253		C				
Oilgear Co., The	17				H		Q
Parks Co., M. H.	204						R
Parks & Woolson Machine Co.	202			E			
Penick & Ford, Ltd., Inc.	206		C				
Perkins & Sons Inc., B. F.	58			E			
Pittsburgh Coke & Chem. Co.	175		C				
Platt Bros. (Sales) Ltd.	19						T
Powell Co., Wm.	159				H		
Powell Valves	159				H		
Precision Gear & Machine Co.	243						Q
Proctor & Schwartz, Inc.	66			E			
Raybestos-Manhattan, Inc. Manhattan Rubber Div.	46						Q
Reeves Pulley Co.	74						Q
Richmond Oil, Soap & Chem. Co.	217		C				
Riggs & Lombard, Inc.	197			E			
Rohm & Haas Co.	49		C				
Rome Soap Mfg. Co.	239		C				
Royce Chemical Co.	135		C				
Ryerson & Son Inc., J. T.	204					O	
Saco-Lowell Shops	8						T
Sandoz Chemical Wks.	31		C				
Scherr Co., Inc., George	236				K		
Schlafhorst & Co., W.	11						RT
Schlumberger & Cie.	229						T
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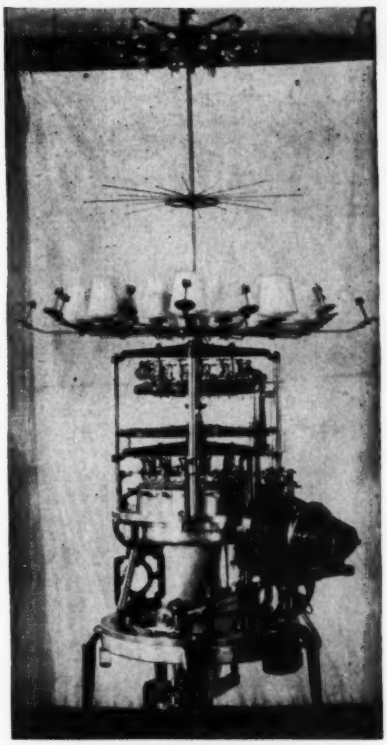

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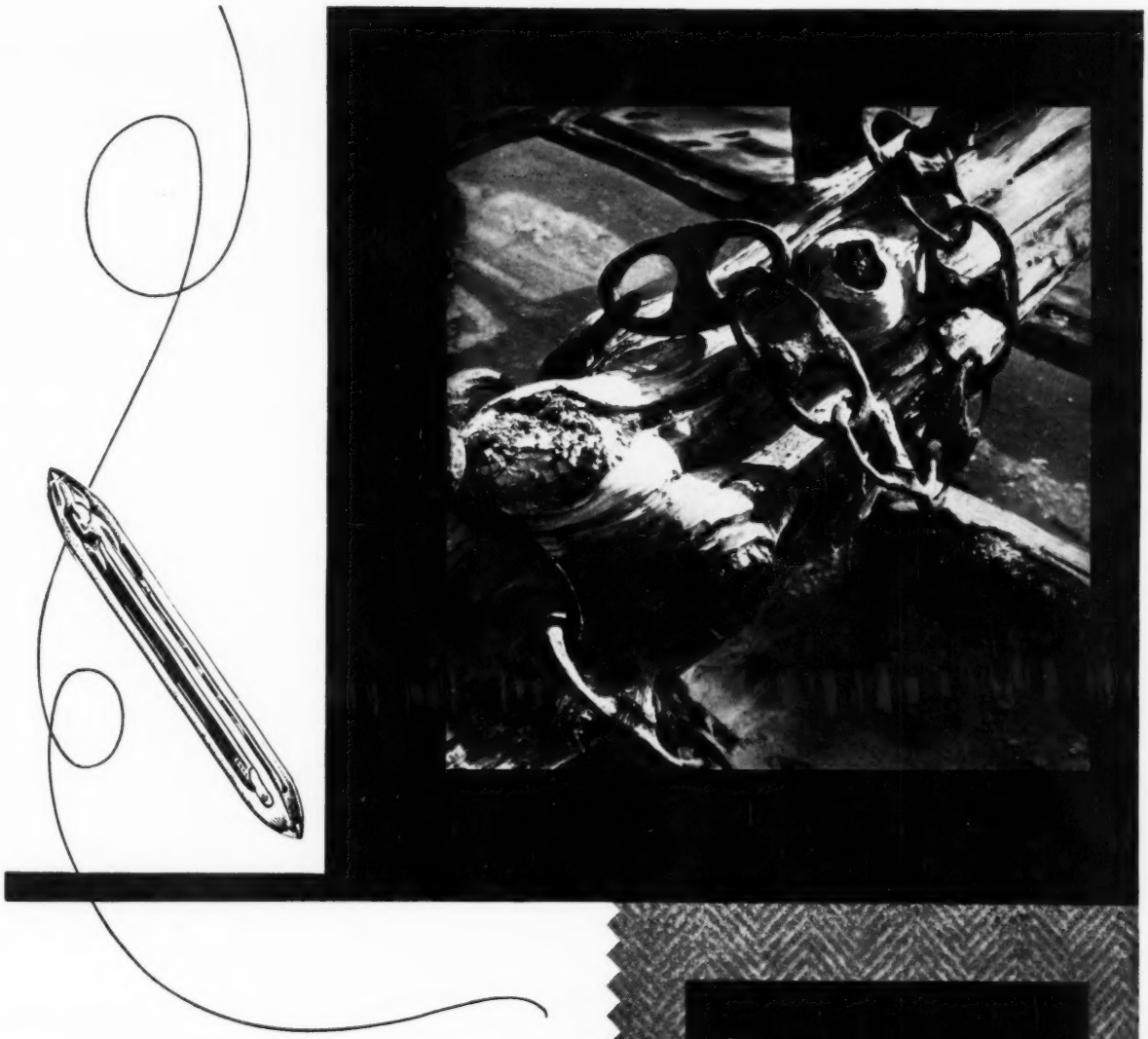

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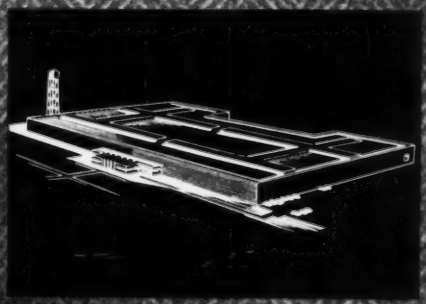

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